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[illegible]	15/13.8	[illegible]	1280 x 1024	Yes	MPR-II
[illegible]	15/13.8	0.28	1280 x 1024	Yes	TCO '99
[illegible]	17/16.0	0.25AG	1280 x 1024	Yes	MPR-II
[illegible]	17/16.0	[illegible]	1280 x 1024	Yes	MPR-II
[illegible]	17/16.0	[illegible]	1280 x 1024	Yes	TCO '99
[illegible]	19/18.0	0.26	1600 x 1200	Yes	TCO '95

[illegible]

Graphics Series

ViewSonic Model	CRT Size/Viewable	Horizontal Dot Pitch	Maximum Resolution	OnView	Low Radiation
[illegible]	15/13.8	0.28	1280 x 1024	Yes	TCO '99
[illegible]	17/16.0	0.25	1280 x 1024	Yes	TCO '95
[illegible]	17/16.0	0.25	1280 x 1024	Yes	TCO '92
[illegible]	17/16.0	0.25	1280 x 1024	Yes	TCO '92
[illegible]	19/18.0	0.26	1600 x 1200	Yes	TCO '92
[illegible]	21/20.0	0.25	1600 x 1200	Yes	TCO '92

[illegible]

Professional Series

ViewSonic Model	CRT Size/Viewable	Horizontal Dot Pitch/Aperture Grille Pitch	Maximum Resolution	Low Radiation
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[illegible]	17/16.0	0.25AG	1280 x 1024	TCO '99
[illegible]	17/16.0	0.25	1280 x 1024	TCO '99
[illegible]	19/18.0	0.25-0.27AG	1600 x 1200	TCO '99
[illegible]	19/18.0	0.25-0.27AG	1600 x 1200	TCO '99
[illegible]	19/18.0	0.25-0.27AG	1920 x 1440	TCO '99
[illegible]	19/18.0	0.25	1600 x 1200	TCO '99
[illegible]	21/20.0	0.25	1600 x 1200	TCO '99
[illegible]	21/20.0	0.25	1800 x 1440	TCO '99
[illegible]	21/20.0	0.25	1800 x 1350	TCO '99
[illegible]	21/20.0	0.25-0.27AG	1920 x 1440	TCO '99

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[illegible]	17/16.0	0.24	1280 x 1024	TCO '99	[illegible]

[illegible]

ViewPanel Series

ViewSonic Model	Screen Diagonal	[illegible]	Maximum Resolution	Analog/Digital	[illegible]
[illegible]	14.0	WALL MOUNTABLE	1024 x 768	Yes	
[illegible]	15.0	WALL MOUNTABLE	1280 x 1024	Yes	
[illegible]	15.0	[illegible]	1024 x 768	Yes	
[illegible]	18.0	WALL MOUNTABLE	1280 x 1024	Yes	
[illegible]	15.0	PIVOT	1024 x 768	Yes	Yes
[illegible]	15.0	WALL MOUNTABLE	1024 x 768	Yes	
[illegible]	18.1	[illegible]	1280 x 1024	[illegible]	Yes
[illegible]	18.1	[illegible]	1280 x 1024	[illegible]	Yes
[illegible]	15.0	PIVOT	1024 x 768	[illegible]	Yes
[illegible]	18.1		1280 x 1024	[illegible]	

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The end of the OS era

Bust it up If you've been following the Microsoft antitrust case, you already knew that the U.S Department of Justice (DOJ) filed a proposal in late April to split the company up Under this scenario, one of the resulting companies would be the operating system developer, and the other would handle everything else that Microsoft currently develops.

Microsoft's competitors have generally hailed both the guilty verdict and the proposed remedy as good for the industry and good for consumers. But, as my colleague, Jeff Evans, likes to point out on his more cynical days, they are happy mainly because weakening Microsoft simply serves their own agendas for total world domination. It's not for any altruistic reasons relating to the public good that Microsoft's competitors would like to see it taken down a few pegs.

By arguing for the power and superiority of Windows, Microsoft made the OS a central part of the discussion about personal computers

It's easy to accuse a successful company of succeeding by breaking the rules, but in Microsoft's case the antitrust ruling gives legal weight to that. With Microsoft appealing, the final outcome is uncertain, and possibly years in the future, by which time the PC landscape will bear no resemblance to today's environment

When historians assess Microsoft's influence on personal computer development they may conclude that the company's biggest achievement was to make users care about an operating system as a thing in itself Before Windows, the operating system was an incidental, albeit essential, part of personal computing. The OS was relevant to the user experience only to the extent that it helped or hindered a user's ability run the applications, which provided the true value of the personal computer By arguing for the power and superiority of Windows, Microsoft made the OS a central part of the discussion about personal computers Doing this changed the competitive environment in a way the DOJ didn't even consider it forced other developers to speak the language of OS when describing the merits of their products

With the Macintosh, a user-level discussion about the operating system is a relatively recent occurrence It used to be that Mac lovers would point to the graphical user interface as its unique and superior feature Then the dialogue changed to System 6, and now we hear about OS 9—both use direct references to the operating system itself Electronic organizers used to be known by their brand names: BOSS, for example. Now, most Palm users know that their device uses the Palm OS, HP Jornada users know that they have a Windows device.

However I sense the beginning of the end of this OS-centric era The coming proliferation of computing devices that aren't personal computers in the traditional sense, along with the rich content accessible on the Internet will change what users want—and that doesn't include details about the operating system. You probably won't care whether your smart cellular phone or your set-top box uses Windows—it's a meaningless issue. You'll only care about whether or not it allows you to go on the Internet and make that key bid at the eleventh hour on eBay, or give your broker a buy or sell order

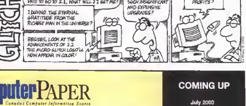
When devices take on appliance like roles in our lives, utility becomes the important variable. Do you think about the bank machine's operating system? Probably not You just want to get your money and scram

Does this mean Windows will cease to be important? Not at all. As one of the components in an information utility grid, Enterprise Windows will play an important role—but not necessarily a dominant one That's a different battle for Microsoft, a business-to-business play

Consumer mind share will still be important—the stylish "connecting the world" TV ad campaigns mounted by Cisco and Nortel show that infrastructure companies still value a strong public image even though their products are largely hidden from public view Today, few people know—or care to know—whether Cisco or Nortel routers played a part in their Web surfing session. Neither do they care which operating system—whether Windows or Unix or Linux—is running on the servers that host their favourite Web sites.

As far as we end-users are concerned, Windows will still be the main operating system on our personal computers. But personal computers will be just one of several devices we'll be using to do what we now clump under the phrase "using the computer" Some of our future devices will use a Windows interface you'll recognize, some will use an embedded Windows that you won't—and some will use something entirely different

Interesting times ahead,
David Tanaka
Editor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PRODUCT REVIEW EDITOR
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PRODUCTION DESIGNERS
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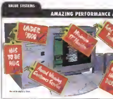

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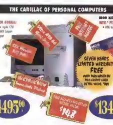

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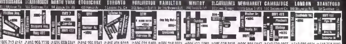

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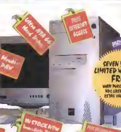
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Denial of service remedy

One of the issues missed in the May 2000 issue article "Waking up to denial of service attacks" was the implementation and enforcement of RFC 2267. This RFC (request for comment) is an informational document for the Internet community titled *Network Ingress Filtering*. It is a way of ensuring the source address on data is accurate.

Denial of service attacks are so successful because the attackers are able to hide the true source IP address of the computer performing the attack. As an analogy, think of a world where people could change the caller ID that appears when they make telephone calls.

RFC 2267 describes a method to enforce accurate source addresses. Simply put, Internet service providers must ensure that data packets entering their network have source addresses that make sense. For example if their dial customers are given addresses beginning with 209.208.207 then obviously, data with a source address of 15.14.13.12 shouldn't be permitted to proceed.

ISPs can show their support for the Internet community by implementing RFC 2267 as quickly as possible. This will help to reduce the attacks by making it more difficult to attack anonymously.

Allan Alton

How private?

A few months ago the media reported the arrest of a British celebrity following the discovery of child pornography on his computer. Apparently the illegal material was discovered by a technician who was repairing the computer.

This case raises a couple of questions about the privacy of files stored on a computer which is being serviced. Do privacy laws prohibit a service technician from browsing through my hard drive and, for example, opening word processor or spreadsheet files which may contain information which is to be kept confidential? Do businesses which repair computers have in-house policies regarding the privacy of clients' computer files when their computers are being serviced?

Jay Goldstein

TCP replies: These are interesting issues you raise. We invite TCP readers to comment on this by emailing us at tcpletters@tcp.ca

Removables—you forgot an obvious one

I noted with some disappointment that you failed to mention one of the better alternatives to removable media storage: removable hard drive bays (see the May 2000 Lab Report, "Store this!"). These are cheap (less than $40), provide very fast transfers (hard drive speeds) and have capacities that match your main drive.

Purchase a copy of Drive Image and you have one of the best backup mechanisms money can buy. Given the current price of hard drives, I find them to be the fastest, most reliable and most cost effective solution for removable storage.

Murray Peterson

TCP replies: We have included removable hard drive bays in previous discussions about storage and your point is well taken.

We think recordable CDs have a great medium term future. The discs are inexpensive, but perhaps more important, every modern computer has a built in CD-ROM drive, so the data is highly portable. The disadvantage of other removable systems, whether Zip, Jaz or hard drive bays, is that you have to have that same device on every other computer you want to share the data with.

PCs still too costly

Do you envision a time when computers will be affordable to all? Everyone probably assumes this is the case already but not so. I have wanted a computer for many years but due to low paying jobs it is a luxury I haven't been able to afford. It seems people in my situation will be left behind by those that can afford new technology. Do you agree?

Peter Randrup

DT replies: Affordable is, of course, a relative term. However, there are (legal) ways of getting a computer even if your finances are tight. To illustrate one extreme, I recently purchased a fully working Toshiba laptop computer for $1 at a garage sale. It is very old, and totally inadequate for any modern application involving multimedia. However, it included a DOS-based word processor and I could easily use it to write all of my articles.

If you live in a large metropolitan area, you may be able to find used computer clearance houses. These companies receive computers in lots of dozens or hundreds, from companies that are updating corporate installations. I have seen 200 MHz Pentium computers with 15-inch monitors for around $400; systems with slower processors, less RAM and smaller hard drives can be purchased starting at around $300. Again

Continued on page 12

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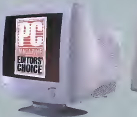

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WHAT'S NEW

Post Office launches 'electronic courier'

OTTAWA—Canada Post (http://www.canadapost.ca) is taking aim at those speedy courier companies with an all-electronic document delivery system it says is secure and attractively priced.

The Crown corporation's newly launched PosteCS service (they call it "post-ex") plays the middleman in an electronic document exchange that keeps data encrypted and allows senders and recipients to verify exactly when a document was sent.

"We're basically closing the gap on our courier products," says Peter Melanson, vice-president of electronic services for Canada Post. "By providing our customers with a service that's faster than same-day or next day morning delivery we're targeting a whole new market."

Canada Post spokesman Rheal Leblanc says PosteCS users can send documents of any size to anyone who has an email address and access to a Web browser. No special software is required to receive PosteCS-routed documents.

Users with PosteCS accounts transfer their documents to a Canada Post server using SSL (secure sockets layer) browser-to-server Web security. Documents are encrypted and stored on the remote server until accessed by the recipient who is alerted to the delivery via email. In addition, senders can route their electronic "packages" to multiple recipients simultaneously.

The system uses the Tumbleweed Communications Corp.'s Integrated Messaging Exchange technology. The system created by the Redwood City, Calif.-based developer manages the encryption and provides password protection, an "electronic postmark," and automatic conversion of documents into portable document format (PDF). Leblanc says the "electronic postmark" is PosteCS's third-party validation of the time and date a document was received by its own server.

Canada Post says the new service was developed in cooperation with postal services in France and the U.S., but the Canadian service is the first to launch commercially.

PosteCS users pay a monthly subscription fee of $24.95, which allows them to send up to 10 packages (of up to 1 MB) to up to 100 recipients during that period. Additional packages

Continued on page 14

Letters

Continued from page 10

these are not the latest and greatest, and even though they may come with a 30 day warranty they are used and could be unreliable. That's the risk. But such a machine should be adequate for word processing, some games, and Web surfing.

If you have a good credit record, you may also be able to lease a new computer for $50 to $75 per month. However, while this makes your payment manageable, remember that you are paying a big premium by leasing. A typical deal might be $1,500 to buy or $50 per month for 48 months to lease. If you do the math, you can see that you'd be paying $2,400 over the 48 month period for a machine you could have purchased for $1,500 plus taxes.

CD-RW blanks cheaper than you say

The Lab Test in the May issue of *The Computer Paper* mentions that "prices (of CD-RW discs) have now dropped to about $15 per blank." I have no idea where Mr. Carruthers does his shopping, but an ad in the same issue prices our Ricoh CD-RWs at $1.79! I didn't have to look hard for this price.

John Seguin

TCP replies: *We suspect that either the price in the ad was a typo, or perhaps the store is using that product as a loss leader. While it is true that CD-R (CD recordable) blanks can now be purchased for under $2, CD-RW (CD rewritable) blanks are still considerably more. We have yet to go into a retail store and actually buy a CD-RW blank at the price you suggest.*

When we consulted a couple of the latest office supply catalogues we found CD-R blanks from around $1.65 ea (if you buy 500 or more) while the lowest price for a CD-RW blank is $3.59—if you buy more than 300 units. These are individually packed with jewel cases—bulk packs are less. To buy CD-RW blanks in singles or small quantities, you'll have to pay more than $5 per disc at most stores.

However, to your point, we have to admit that this is still less than the $15 quoted in the article. However, we would argue that it is equally rare to find them at the $1.79 you quote. ❑

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N125

Continued from page 12

cost $2.50 for the first recipient and $1.50 for each recipient thereafter. There is also a $1 per MB charge for packages larger than 1 MB.

Leblanc says Canada Post plans to add technology to support public key infrastructure (PKI) to PosteCS soon, but has yet to announce a launch date for the upgrade. PKI would allow authentication of senders and recipients instead of just encryption of the data itself.

—Newsbytes

RIM releases PDA-size BlackBerry

Research in Motion (RIM) has added added two new models to its BlackBerry line. The new devices RIM unveiled are a cross between its popular BlackBerry email pager and a personal digital assistant (PDA).

The RIM 957 model incorporates a high-quality screen, 32-bit Intel 386 processor, 5 MB Intel flash memory, a complete keyboard, embedded wireless modem, integrated organizer and full support for the BlackBerry wireless email service. The unit measures 12x8 cm and weighs 150 g. Along with the ability to send and receive email wirelessly, the device comes with a calendar, address book, task list, memo pad, calculator and alarm. It synchronizes with a PC via a docking cradle and Intellisync software.

The device is sure to cause concern for executives at Palm Computing, which currently controls about 70 percent of the PDA market. RIM's new device has many of Palm's features in addition to always-on network access, a feature missing from Palm's current lineup.

RIM also unveiled the RIM 950, a pager-size device with either 2 MB or 4 MB memory.

Both devices use RIM's BlackBerry 2.0 software. The RIM 957 is expected to sell for $699, the RIM 950 with 4 MB for $549, and the 2 MB model for $499. The BlackBerry flat time airtime rate is expected to be $49.99 (US$39.99) per month.

—canadacomputes.com

Corel previews CreativeAnywhere!

In April, Ottawa-based Corel Corp. unveiled a set of online creativity tools and services, Creative Anywhere! The Web-based offerings allow users to upload and enhance digital images for free, with more than 20 special effects and image-editing features like cropping and rotating. The final image can be downloaded or stored online. Those images, or Corel clipart images, can also be used to customize clothing, mugs, mouse pads and other promotional items which can be ordered through the same portal. Corel says it plans to incorporate additional creativity services, such as digital photograph fulfillment, in the near future. CreativeAnywhere! tools can be accessed through http://www.corelcity.com

—Megan Johnston

Continued on page 117

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Web development software shootout

GoLive, FrontPage, Dreamweaver, Drumbeat, and HoTMetaL Pro can create great HTML pages, but can they meet the Web development requirements of the future?

By Jacques Surveyer

While researching this article, I looked back on reviews of Web authoring tools from 1996. Of the five major products we review in this roundup only two—Microsoft FrontPage and SoftQuad HoTMetaL Pro—were among the 24 programs reviewed just four years ago.

Back then, the buzz was about the visual editing that FrontPage was pioneering—to the chagrin of hard-core text-based HTML (hypertext markup language) editors and Webmasters. SoftQuad also created quite a stir by wrapping up an SGML-based (standard generalized markup language-based) visual editor similar to FrontPage with a tag view. But the ruling Web tools were primarily text-based with some added features like on-board FTP delivery to a Web site or validity checking of all links on a Web site.

It is interesting to compare these "old" features with the price of admission for today's Web development tools as shown in Table 1. The five tools we examine—Adobe GoLive 4.0, Macromedia Dreamweaver 3.0, Macromedia Drumbeat 2000, Microsoft FrontPage 2000, SoftQuad HoTMetaL Pro 6.0—are all adept at delivering Web pages. However, Web development now emphasizes dynamic database-driven pages that are finished on the fly. The Web server determines who you (the Web site visitor) are and what you want, then delivers page content that draws on your saved preference settings or past actions/pages visited. In short, page content is moving from static predefined layouts to dynamic content.

All five of the Web development programs reviewed here are very competent in developing static Web pages, but vary in their ability to develop dynamic sites. However, it is important to point out that even dynamic Web pages often have a substantial static core that is often developed using standard HTML tools and techniques. So hang on to your HTML skills but expect to need to know more about JavaScript, Flash, JavaBeans and dynamic database access.

Common features

As noted above, visual editing of Web pages was a novelty four years ago. Now, in addition to delivering a visual HTML editor, software developers are expected to add the following features to Web authoring tools:

- scripting help as well as a text editor for JavaScript, VBScript, Cascading Style Sheets (CSS) plus Java and XML (extensible markup language) interfaces;
- smart syntax checkers that validate HTML, JavaScript, VBScript and CSS against various versions of Internet Explorer and Netscape Web browsers;
- asset display and management facilities to keep ever-sprouting images, audio, video and other Web resources in control;
- site management facilities that not only move Web pages and assets to/from Web sites but also run validity checks;
- team development capabilities, including check-in, checkout, and backup with version control;
- help, tutorials, wizards and coaching to help users with the syntax of all the various Web languages and tools;
- and database connectivity for dynamic Web content, transaction data, and Web site resource management.

And you can see in Table 1, all five products reviewed deliver pretty solidly on most of these baseline features. We conducted a simple test with all the review products, by creating a five-page Web site with a consistent colour and style theme, navigation buttons and tables of images that linked to detail pages, which in turn linked back to a home page or other entry page. Some animation and dynamic colour changes were made depending on the path taken, but these were simple canned scripts. There was no attempt made to record Web user info, preferences, or to answer queries with data from a database. Though the test Web site was not quite static, it certainly was not close to a full-scale, server-based dynamic site.

We were able to create the test site in about an hour with all five tools. Each tool has its strengths and we used this exercise as a means of comparing them and highlighting the individual features of each program.

Adobe GoLive 5
From: Adobe Inc.
http://www.adobe.com
Runs on: Mac and Windows
Street price: $305
Pros: Strongest support for coding in JavaScript, VBScript and HTML with great visual editor
Cons: Rough edges in interface as every little icon does something
Out of the box: Easy install. Very good manuals and tour of rich, complex program
Overall rating: 4 out of 5

Adobe GoLive is a programmer's Web development tool with property sheets, strong support for both editing and debugging of JavaScript, VBScript and Active Server Pages (ASP) in a Dynamic Link feature that allows connection to any ODBC compliant (open database connectivity-compliant) database. In addition, GoLive lets the user set the target browser and scripting language, then customizes all wizards, generators, debuggers, and validity checks to respect specific browser and script constraints. Others approximate—but no tool matches—the thoroughness of GoLive in helping to relieve programmers of some the tedious tasks of resolving incompatibilities resulting from the counterproductive Microsoft and Netscape browser war.

Even with this considerable power, the GoLive visual editor matched HoTMetaL Pro and FrontPage for ease of development during our five-page Web site quick build. Using the layout grid positioning (Drumbeat has a similar feature) allowed for precise placement of buttons, text and images. Even targeting for version 3.0 browsers was not a problem as GoLive converted non-overlapping layouts to tables. However, a word of caution: some unusual icons lurk on the borders of the various views and GoLive windows. So make sure you read the very good manual and go through the product tour. These aids simplify tasks such as setting guides or editor preferences.

Being a programmer who has used FoxPro, Visual Basic, and, more recently, several great Java tools, I especially liked the rich selection of GoLive's Toolbox and the context-sensitive Object Inspector. If you highlight an image with the Object Inspector, for example, it changes its tabs and underlying dialogue to those required for setting image attributes and events. Highlight a line of text and voilà—it transforms into a Text Inspector with its unique properties/attributes and action settings. Coupled with right mouse clicks—which also pop up context-sensitive menus—you can start to work very efficiently in GoLive. But be warned: you need all of the power of the 200 MHz Pentium processor and 64 MB of memory that Adobe recommends.

Of the common features of the current generation of Web authoring tools noted in the preface, GoLive was less attractive than some of the other programs on two fronts. First, it only has small-scale improvements in XML support. GoLive will recognize—and therefore leave alone (not mangle)—XML tags, and will allow source code edits of XML tags, assuming that the end user knows what to do. However, it still does not have a validating XML parser or layout tool to preview XML documents.

Second, many of the image and multimedia handling features are geared exclusively to Adobe products. For example, the Tracing Image feature only works with Adobe Photoshop's proprietary PSD file format, meaning that to use the feature, images in the Web's defacto standard formats—JPEG, GIF, and PNG—have to first be saved in PSD format. This smacks of the same myopic vision that characterizes some equally proprietary aspects of Microsoft's FrontPage.

Nonetheless, GoLive can be a very productive Web authoring environ and we look forward to its support (expected by fall) of ASP,

Continued on page 18

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Web development software shootout

Continued from page 16

JSP (Java Server Pages) and other dynamic page and server-based features. The overall rating (4.3 out of 5) we gave this product for its good combination of programming and visual layout features was pulled down by Adobe's move to proprietary image and multimedia handling, added learning bulk, and slow move to XML and expanded Java/JSP/Servlet support.

Macromedia Dreamweaver 3
From: Macromedia Inc.
Tel: 800-457-1774 http://www.macromedia.com
Runs on: Mac and Windows
Street price: $329
Pros: Dreamweaver has more ease-of-use features for HTML layout and canned scripting than any tool.
Cons: Move toward XML and database-aware development is slow. Interface is very idiosyncratic.
Out of the box: Easy to install. Good manual, product tour and tutorials, but lots to learn.
Overall rating: 4.2 out of 5

Dreamweaver has a style all its own. While all of the other Web tools in this review have adopted some sort of multi windowpane approach—often using tabs to access alternate window views—Dreamweaver sticks to a more freeform, multi-window style, with separate dialogue boxes (Properties, Behaviour, Timeline editor, HTML/Source code editor, and others) that float above the page layout canvas. Some love it, others find it disconcerting initially, but few will dispute that the program is packed with features and functions designed to make Web development faster and easier.

In our out-of-the-box trial of Dreamweaver we were able to create the five test pages fairly quickly, even though we had not used this product since reviewing the previous version (Dreamweaver 2.0) nearly a year ago. We were slightly confused by the image links, as the image target link did not work the way we expected. However, Dreamweaver's easily configured templates allowed us to generate two extra pages in a blink. Nonetheless, I am convinced that Macromedia's own Drumbeat template technology is so superior that it will have to be adopted in some fashion by Dreamweaver.

Three features of Dreamweaver help speed up visual editing. First, Dreamweaver is committed to drag and drop operations (as is HoTMetaL Pro). For example highlighted text within a table cell can be dragged and dropped anywhere else on the page, as can any other image or object.

Second, Dreamweaver's new quick tag editor is one of those features that should be spelled "nifty." Point to an object in visual layout mode, right-click, select Edit Tag, and up pops the HTML for that object. Edit the tag all you want, hit return and the object immediately changes in visual layout to reflect your edits. Nice.

Finally the history palette records of all your edits. This allows for unlimited undos and is the starting point for creating nifty JavaScript macros in Dreamweaver. It is like the Macro recorder in HoTMetaL Pro except that it is always on.

What is curious about Dreamweaver is that despite its extensive support for JavaScript in its own SDK/API, History mechanism, TimeLine scripts, and many predefined behaviours (canned JavaScripts or VBScripts), Dreamweaver lacks an industrial strength parser and debugger for JavaScript that is equal to those in GoLive and HoTMetaL Pro.

Also, the TimeLine editor overlaps with features in Macromedia's own Director and Flash products, but that may be a reflection of the standards turmoil over World Wide Web Consortium's SVG (scalable vector graphics) specification. However, the XML and Java/JSP/JavaBeans specifications have all been available for a year or more and it appears these features await a derivative Macromedia product called UltraDev. So we rate Dreamweaver 4.2 out of 5 reflecting our own bias toward programmatic interfaces like those of GoLive or FrontPage.

Macromedia Drumbeat 2000
From: Macromedia Inc.
Tel: 800-457-1774 http://www.macromedia.com
Runs on: Mac and Windows
Street price: $620
Pros: For a new product it has a very polished interface, superior template system and strongest dynamic page support.

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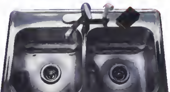

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Designing for tomorrow's Web

The key to success in real estate is location, location, location; in Web development it's speed, speed, speed

By Jacques Surveyer

The term "Internet speed" is often used to refer to a rapid pace of development and change. Sure, we all know that moving quickly is a survival strategy on the Net but how does speed manifest itself in ways that a business can incorporate into its planning?

> The Net makes every e-business equal at the most critical phase in the Web buying process—the initial point of contact

First, speed to market is the critical factor for e-business and traditional bricks-and-mortar companies alike. More organizations need to deliver yesterday because their competitors already have a Web presence and are starting to ramp up their total brand/service awareness thet Net delivery encompasses.

Second, speed of Web site operations is critical because competitors are one click away. The Web is a great leveller. It makes every e-business equal at the most critical phase in the Web buying process—the initial point of contact. On the Web every site is the same to users seeking a fast and easy "buy," but a poky, slow ho-hum site will quickly lose its lustre along with potential customers. There are dozens of studies to prove this notion: thus the need for very fast servers and always-crisp response time.

Finally, the speed at which you adapt and change your Web site to meet the needs of customers and match competitors' offerings is also critical.

Evolving tools for evolving needs

It should come as no surprise that the tools and tricks of Web development itself are also moving at Web warp speed. For example, I recently had occasion to go back to prehistoric times and use the first version of FrontPage, when it was known as Vermeer FrontPage prior to its acquisition by Microsoft. This circa 1996 program was the only tool I had access to when I desperately needed to create a multi-page page demo Web site in a hurry for a potential client. I wanted to do the complete layout with frameset, navigation bars, intra-page links, images, tables—the works—for several of the dozens of pages that would comprise the final version of the Web site.

What would have been an easy one- to two-hour task with current versions of Web authoring tool like Adobe GoLive, FrontPage 2000 or SoftQuad HoTMetaL Pro, turned into a nightmare with this early version of FrontPage. I had become so used to FrontPage 2000 conveniences like the template generator, tabbed views and right mouse clicks for specific object menus, that I miscalculated by a full day the amount of work required using this early version—which was considered a breakthrough in its day. Vermeer's use of a toolbox, visual layout, and site views were the key innovations that attracted Microsoft's attention many Web eons ago.

The Internet equation

The following is an abbreviated equation of what's happening around the Internet and e-business:

e-Business -
B2B+B2C -
CRM+EIP+ERP+SCM –
ASP^1
(HTML+ASP^2+MAC+JSP+J2EE+EJB)
WebDev

What does this mean? Simply that e-business is composed of two major components, business-to-business (B2B) activity and business-to-consumer (B2C) activity. To respond to these, companies are realigning their business practice along four main streams: customer relationship management (CRM), enterprise information systems (EIP), enterprise resource planning (ERP), and supply chain management (SCM).

Application service provider (ASP^1) is the new model companies are using to energize

Continued on page 22

Editor's Note:

For the purposes of this article, we have differentiated the two definitions of the acronym ASP by numbering them. ASP^1 refers to application service provider, and ASP^2 to Active Server Pages.

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Acer SOHO 5 port Hub	$49

Sound Card

	Diamond MX400 PCI	$77
	Creative Ensoniq PCI	$32
Sound Blaster	Sound Blaster PCI 128 oem	$50
	Live Value V2.0 digital oem	$70
	Sound Blaster Live X-Gamer	$130
	Sound Blaster Live MP3 +	$135
	Sound Blaster Live platinum	$266
AOpen	AW37 Sound Card ISA	$17
	AW200 PCI 128 Wavetable	$19

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Iomega	NEC Zip 100MB Int. IDE	$70
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	Zip 250MB Ext Parallel	$232
	Zip 250MB Ext USB	$242

CD ROM

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Plextor 40X Wide SCSI	$147
Toshiba 40X IDE	$79
Panasonic 40X IDE	$54
Creative 52X IDE	$66
Pioneer 10X DVD IDE	[illegible]
Millenium 4x4x24 CDRW IDE	[illegible]
Plextor 8x4x32 CDRW IDE	[illegible]
Creative CD-RW8432 KIT	[illegible]
Ricoh 7060S 6x4x24 CDRW SCSI	[illegible]
Yamaha CRW 6416S SCSI	[illegible]
Yamaha CRW 6416EVK KIT	[illegible]
Plextor 12x4x32 CDRW SCSI	[illegible]
HP 9210e 8x4x32 CDRW USB	[illegible]

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Quantum	10.2GB Fireball LM	$177
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	20.5GB Fireball LM	$276
	30GB Fireball LM	$304
Maxtor	10GB 91021U2	$153
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	20GB 92041U4	[illegible]
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	40.6GB 54098U8	$480
Fujitsu	6.4GB MPE3064AT	$122
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	1100A 600dpi A-I-O 8ppm	[illegible]
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	Stylus 760 1880 7ppm	$226
	Stylus 860 1880 9.5ppm	[illegible]
	Stylus Photo 750 1440	$340
	Stylus Photo 870 1880	[illegible]
	Stylus 880 1880 12ppm	$483
Canon	BJC-3000 1440dpi 6ppm	$227
	BJC-6100 1600dpi 8ppm	$312

Scanner

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	ScanJet 4200C	[illegible]
	ScanJet 5300C	[illegible]
	ScanJet 5370C	[illegible]
Acer	Acerscan 620PT/UT	[illegible]/148
	Acerscan 640U	$120
	FOTOPRISA 300P	[illegible]
Mustek	600CP	[illegible]
	1200UB	[illegible]
	1600SP	$100
AGFA	Snapscan 1212P	$117
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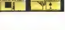

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Designing for tomorrow's Web

Continued from page 20

these four streams. The building blocks of application service provision include tools like HTML (hypertext markup language), ASP (Active Server Pages) and JSP (Java Server Pages). Finally, Web development is evolving from the delivery of static page content to dynamic content delivery, which is made possible by the new application service/active server model. Let's look at these elements more closely.

B2B

Business-to-business commerce traditionally has been done by fax, phone and EDI (electronic data interchange). This segment of the market has been variously estimated to be $70 billion to $120 billion worldwide in 1999. Some estimates suggest it will increase to between $700 billion and $2 000 billion by 2004. As you can see, there is rarely agreement on the size and growth of the e-business markets. But even using the most conservative estimates, a 40 percent annual growth rate in the B2B market is expected.

And the numbers are not totally out of line, as major companies, including Intel and IBM, have seen substantial savings and increased customer satisfaction by converting their procurement and payables operations to Web based systems. The savings are so substantial that installations of CRM and SCM software have taken off.

B2C

Business-to-consumer commerce is what most of us see. This is the traditional Net glitz category with online retailers like Amazon.com, CDNow, and eToys among the hundreds of players in this ever-crowding market. The B2C market is substantially smaller than B2B market. Estimates for the B2C market worldwide in the last year are between $16 billion and $30 billion. Like B2B the B2C market is expected to see an average 30 to 40 percent annual growth rate over the next five years.

Convenience, bargain prices and wide selection are drawing shoppers to the Web. Even big-ticket items like cars, travel, or computers are subject to the same phenomenon—first customers shop for information and price comparisons online, then eventually a larger number of people are doing it all, including the final purchase, on the Web.

For the most part, B2C and B2B are being handled in four ways by organizations both large and small.

CRM

Customer relationship management systems reach out over the Net to supply customers not only with online stores, but with other support services such as financing, shipment tracking, warranty and repair services, incentives and bonuses.

EIP portals

An enterprise information planning portal puts an easy-to-use Web interface on all of an organization's key information resources so authorized employees, customers, and suppliers can get at any data they require no matter where they are in the world and regardless of the time of day or night. The Web fosters a much more open organization.

ERP and SCM

Enterprise resource planning systems often form the guts of the organization planning, accounting and other operational management systems. Thus, ERP systems often provide the data and processing core for CRM, EIP and SCM systems.

Many companies small and large have achieved substantial savings with Web based SCM and CRM systems. These savings are driving other companies on the same supply chains to adopt similar software. The crucial point here is that the Web has become the preferred (but not the only) method of delivering any and all of an organization's products and, especially, information services. Hence, the explosion in demand for Web-savvy users as well as developers.

So how are these B2B and B2C systems being developed? Well, quickly as we have seen. And in order to deliver as quickly as possible more organizations are looking to buy major components of their Web systems. Thus companies such as Ariba, Broadvision, Commerce One, i2, JDEdwards, Hummingbird, Manugistics, Oracle, Peoplesoft, SAP, Siebel and many others provide turnkey systems for CRM, SCM, ERP and/or EIP.

Most vendors make their systems highly customizable by the end-user organization. Using templates and scripts, the packages can be customized to fit the organization's requirements. In addition, most of the programs provide interfaces for popular systems like Oracle, Peoplesoft, and SAP ERP or through ODBC, JDBC, and XML (extensible markup language) to underlying data storage systems.

ASPs

In addition, a whole new class of Web compa

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4X4X24 MITSUMI CDRW	$379
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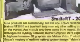

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Web development software shootout

Continued from page 18

Cons: Can't read in existing HTML pages/sites. Limited support for XML and JavaScript/VBScript validation and debugging

Out of the box: Easy to install. Included manuals (three) and tutorials are good, and are needed to master Drumbeat's features' nuances.

Overall rating: 4.4 out of 5

Wouldn't you know it, we rank Drumbeat as one of the best Web developer tools and just as we are going to press Macromedia announces that it will be replaced by a new tool called UltraDev, which is expected to appear in June or July. Indeed, by the end of this year, Drumbeat will not be supported.

The new UltraDev will read Drumbeat 2000 ASP and JSP Web sites but not the native Drumbeat EDF format workspaces. It will support ADO (ActiveX Data Objects), ODBC, and JDBC (Java Database Connectivity) databases and Web servers such as Microsoft IIS, Allaire Cold Fusion, IBM Websphere, BEA WebLogic, and Netscape Enterprise Server. It will run on Mac 8.6 or greater, and Windows 9x, NT 4.0, and 2000.

Here's hoping that in its new UltraDev product Macromedia will retain Drumbeat's superior interface and very powerful template system. Stay tuned because we will keep you posted.

Microsoft FrontPage 2000

From: Microsoft Corp.

http://www.microsoft.com

Street price: $100 (also included as part of Office 2000 Professional)

Pros. Offers good balance of features for visual and source editing, and especially for site management.

Cons: Has only the most basic support for scripting, Java, and XML. Many extensions and advanced features proprietary

Out of the box: Very easy to install. Includes no printed manuals as Microsoft goes for all-electronic documentation. Introductory tutorial is average.

Overall rating: 4.2 out of 5

The five-page Web site exercise was completed most quickly using FrontPage 2000, despite the so-so tutorial and lack of printed manuals. This speaks well of the vaunted Microsoft usability studies and ease of use. However, we did run into a problem when we declined to use FrontPage's proprietary rollover buttons and incorporated our own buttons and JavaScripts.

Unlike Adobe GoLive—which has a native debugger—you have to rely on Internet Explorer's JavaScript debugger using FrontPage. As I was only using Netscape on the test system, figuring out the JavaScript coding problem took some astute sleuthing.

On the plus side, FrontPage's powerful report and site management features made spotting orphan Web pages and cleaning up broken links a cinch. In addition, some Web developer friends say they really appreciate the task setting features of FrontPage. For larger projects, the task page becomes essential to guarantee that administration tasks don't slip between the cracks.

But as Microsoft giveth, so Microsoft taketh away. FrontPage's handling of saved HTML files has improved—the default behaviour is no longer to mangle your carefully formatted code when editing Web pages. However, when dealing with a site, all the proprietary standards for file saving and resource/asset management (with some Preference set overrides) revert to FrontPage's control.

Microsoft has added more HotBots with convenient features like menus, but some of these require new FrontPage extensions that non Microsoft IIS (Internet Information Server) Web sites may not support.

As in the case of GoLive—which shows a distinct preference for Adobe image and multimedia-editing products—Microsoft has more tightly integrated FrontPage with its Office 2000 products. However, many of these features only work completely with Internet Explorer (not Opera or Netscape Web browsers).

So, if you are doing simple Web page edits, FrontPage (which we gave an overall rating of 4.2 out of 5) is one of the easiest and fastest Web authoring tools. It's well worth considering if site management and team support are critical, as it shines in managing complex sites with many clusters of pages. If you are in an all Microsoft shop it's definitely worth exploring, except if you need extensive JavaScript, JavaBean, and/or XML support.

Table 1

Common features

Feature	Supported in:
Visual editing and Web page layout features	
Visual design supports visual layout, HTML source and browser preview with tab access.	ALL but Drum (no HTML)
Toolbox in visual layout supports text, image, table, layers, horizontal rule, buttons, check box, radio button, text field, combo box, list box, and hidden field	ALL
Property sheet/attribute inspector for properties of Web page objects.	ALL
• Right mouse activation of object specific popup menus.	ALL
• Associated events for scripting, HTML element list.	AGo, SQ
Treeview window of assets/resource manager for images, scripts, multimedia and objects.	ALL
• With thumbnail view plus drag-and-drop operations	Drum, SQ
• Pre-developed assets like images, buttons, drop caps, navigation scripts, ticker text, etc.	ALL
Support for frames, forms, JavaScript, VBScript, JScript, Java Applets, ASP and ActiveX	ALL
• Added support for JavaBeans and XML.	AGo, Dmw, SQ
Support for multimedia images (JPEG, GIF, PNG), audio (WAV, MP3), video, animations	ALL
Pixel-precise positioning, layering, Web-safe colour chooser	ALL
Support for HTML styles and CSS (cascading stylesheet) editing, frameset editing	AGo, Dmw, FP, SQ
Navigation bar, menus, and/or tab interfaces.	AGo, Drum, SQ
• Extra libraries of images, scripts, and other resources	ALL
Source code editing and debugging/validation	
Source code editor with colour coding, and toggles for word wrap, line numbering	ALL
• HTML checks target browser (IE 2-5, Netscape 2-4.x) script editing	ALL
• JavaScript, VBScript validity check and debugging	AGo
Source code error log matching, error code wizard/aids	ALL
Site-wide search and replace, spell checker, auto and block indents on source	ALL
• Search/replace regular expressions, tags and attributes, case and whitespace insensitive	AGo, Dmw, FP, SQ
Team support with check in and check out, and file synchronizing	AGo, Dmw, FP
Site-wide features and tools	
Site view of Web site and cross-page links.	ALL
• Thumbnails of pages and resources, orphaned pages, and broken links.	SQ
Site import, special file imports	AGo, Dmw, FP
FTP and file synchronization	AGo, Dmw, FP, SQ
Themes and/or templates for partial to complete page mockups.	ALL
• Themes/templates with selective locking of features	Dmw, Drum, FP
• Template inheritance, tree structure, drag-and-drop pages between templates.	Drum
CSS editor and style setting	AGo, Dmw, FP, SQ
• Buttonmaker	AGo, SQ
• Timeline editor for action and multimedia sequences.	AGo, Dmw
Program customization and extensibility	
Customize contents, positioning of toolbars and menus items	ALL
• Positioning and sizing of window panes and dialogues.	ALL
• Preference settings for editors and site tools	ALL
Macro or VBA support for customizing program features.	AGo, FP, SQ

Legend:
AGo=Adobe GoLive, Dmw=Dreamweaver, Drum=Drumbeat, FP=FrontPage, SQ=SoftQuad HoTMetaL Pro

SoftQuad HoTMetaL Pro 6

From: SoftQuad

Tel: 416-544-3000 http://www.softquad.com

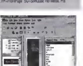
Street price: $130

Pros: Great visual editor offers four views, including the increasingly important tagged view. Has powerful Asset Manager and Attribute Inspector.

Cons: Script debugging is limited. Miva database solution is proprietary.

Out of the box: Easy to install. Has very good tutorial and printed manuals. HTML reference and List of Elements really help novices.

Overall Rating. 4.5 out of 5



SoftQuad has slowly, stealthily climbed the ranks of speed and ease of use to the point that—to my surprise—it tied with FrontPage 2000 as easiest to use in the five-page Web site creation exercise. Tables, links and images were dead simple. The Asset Manager provided some nifty Drop Cap and Button resources for

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setting up navigation bars. Like Dreamweaver and FrontPage's FTP facilities, HoTMetaL Pro made it simple to synchronize the newly edited pages on my ISP's Web site. In fact given HoTMetaL Pro's List Elements and HTML reference, I would recommend this tool for new Web developers.

In addition, we found HoTMetaL Pro was very easy to customize for our specific style. The toolbars can be moved and edited extensively. We were able to record macros and, with a modicum of JavaScript, convert them into our own commands for adding a standard navigation bar for example. Finally the Tag View, List Element (of all possible HTML tags that can be used in the current context) and Attribute Inspector constantly helped us out of HTML quandaries.

However, when used with the proprietary Miva database connections, the Attributes and List Elements proved terse and almost unhelpful. But along with FrontPage, HoTMetaL Pro's help and wizards were some of the most helpful among the Web developer tools.

With its companion product, XMetaL, HoTMetaL Pro has the best XML and SGML support of all the tools reviewed here. In addition, the extra resources such as scripts, images, buttons, drop caps, calendars, and textures are not only ample, but well organized in the Asset Manager.

Like GoLive, HoTMetaL Pro emphasizes drag-and-drop ease of use and live thumbnail previews. So marshalling your resources for re-use is just a step simpler with this Web authoring tool. The fact that HoTMetaL Pro includes Ulead's excellent Photo Impact, Photo Explorer (yes, just drag and drop images from Photo Explorer into HoTMetaL Pro), and Photo Animator is just another bonus. As noted in Table 1, SoftQuad's HoTMetaL Pro does very well in the comparison of key features—and at a price is more than competitive. Thus, we give HoTMetaL Pro the top overall rating of 4.5 out of 5.

Web developer tools summary

The bottom line is whether or not these Web authoring tools will help developers deliver fast, robust Web pages efficiently. Without a doubt in the case of static Web pages all of the products were considerably faster than the proverbial Visual Notepad approach. The templates and free Web resources these tools make available alone can give even savvy developers a big head start.

As for dynamic multimedia Web pages, FrontPage, GoLive and Dreamweaver were the best, but really all of the products needed the help of multimedia tools like Adobe Premiere, Macromedia Director or Flash, or image editing tools like Corel PhotoPaint or Adobe Photoshop.

In the database area, Drumbeat clearly led the way with Adobe GoLive and SoftQuad HoTMetaL Pro being fairly helpful within their limitations. But even using tools like Cold Fusion or Java tools like Visual Café and JBuilder, I have found myself reverting to using HoTMetaL Pro or GoLive to quickly create skeleton pages for use with dynamic page creation tools.

The best advice we can pass along is that readers do not have to take our word for which is the best as free, 30-day trial versions of all of the reviewed products can be downloaded from their respective Web sites, and in most cases with no restrictions. ❑

Jacques Surveyer is a consultant who can be found Web trolling at jsurv@inforamp.net.

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New tools redefine Web development

XML is being touted as the tool for universal interchange of data on the Web, while Drumbeat is pushing the Web authoring tool set to new heights

By Jacques Surveyer

A couple of notable technologies are on the verge of redefining Web development. The first is extensible markup language (XML), which is rapidly becoming a universal data interchange standard. This is extremely important because heretofore every time developers created a new system, they also created a new island of effectively isolated data unless provisions had been made to add Application Program Interfaces (APIs) into that data. But even then, the API would still have its unique characteristics that outside users would have to get used to. What XML provides is a standard interchange of data API.

A second breakthrough is a Web development tool called Drumbeat 2000. Although its developer, Macromedia intends to discontinue the brand we predict that the technology within will live on in future Macromedia products. This product has set new standards for ease of use in graphical user interface (GUI) development, especially with its novel template system and effective interface layout. Watch as other vendors render the sincerest form of flattery—copying.

XML

Software developers as diverse as IBM, Microsoft, Oracle, SAP, Sun and many others are flocking to XML and using it as a key component in their Web and business-to-business (B2B) and business-to-customer (B2C) solutions. The momentum of XML has been building for the past three or four years as more pieces of the standard fall into place.

Like hypertext markup language (HTML) and Cascading Style Sheets (CSS), XML is just another World Wide Web Consortium (W3C) software standard. (W3C is the international body that oversees development, approval and dissemination of Internet standards.) XML is the standard for the identification and interchanging of information over the Internet—hence the great interest.

The power of XML is fourfold. First, XML is derived from an existing standard, standard generalized markup language (SGML) and hence comes with the pedigree of proven ideas and operability adapted and improved for the Web. Second, through the use of standard Document Type Definitions (DTDs), these separate XML descriptor file(s) contain the schema or instructions on how a data file, table or document is defined and laid out. Thus any XML based program can describe the contents of any XML defined document which helps increase the effectiveness of Internet search engines and knowledge management systems.

Through formatting and transformational extensions in XML, one can not only access but also manipulate and even transmit individual elements of XML documents. Thus, XML becomes a neutral and standardized medium of exchange between just about any

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document or database Fourth and finally XML is really not one but a collection of standard procedures for describing, transforming and interchanging data between two systems Here is a list of the most important XML standards, and their status with the regulatory body:

- **XML 1.0:** The basic standard for XML markup and function. (Standard has been adopted.)
- **XSLT** Extensible stylesheets transformations It determines how to transform one XML doc into another (Standard has been adopted.)
- **NameSpaces** How to apply more than one DTD to an XML document. (Standard has been adopted)
- **XSL 2 0** The other half of XSL for formatting and layout of XML documents. (In working group phase)
- **XLINK/XPOINTER.** Provides for robust and scalable hyper linking in diverse environs. (In working group phase.)
- **XMLQuery** Provides for flexible querying from real and virtual documents on the Web. (In working group phase)
- **Style Sheet Linking** Allows for linking one or more stylesheets. (Standard has been adopted.)
- **XML Schema.** Provides more functionality to current DTD schemas (In working group phase nearing recommendation)

As one can see, only four of eight key working groups have reached the standards stage In addition, a number of other standards such as MathML (math markup language) and SVG (scalable vector graphics) await completion of the core XML set The current XML standards have been in working groups for between two and four years, so this gives an idea of how slowly XML standards are set But with so much B2B, customer relationship management (CRM), and supply chain management (SCM) software awaiting a complete XML standard set, the heat is on to get things resolved.

Yet if one were to look at an XML database using a product like Bluestone's Visual XML or Softquad's XMetaL, one would be taken aback by the verbosity and duplication required to specify XML data. That is the strength and weakness of XML It is great for standard description and interchange of data but much less attractive for permanent/persistent storage of data.

XML data often occupies three to seven times the storage required for a relational database that contains the same information. So when small to intermediate amounts of data need to be communicated XML is quite effective However, when very large quantities are involved—high volume data interchange forums such as data warehouses and some online transaction systems—XML often gives way to Extract Transform and Load software But for so many applications, only small marginal changes have to be communicated (think of the Web) and that's when and where XML shines So expect to see lots more XML software emerging in the next few years

Drumbeat 2000- Breakthrough in Web development

When Macromedia, a leader in Web developer tools with products like Dreamweaver and Fireworks, purchased Elemental's Drumbeat 2000, it went almost unnoticed The deal didn't seem to make sense, as there appeared to be a lot of overlap between Dreamweaver and Drumbeat However a closer look reveals that Macromedia may have pulled off a real steal Although Macromedia has announced it will be replacing Drumbeat with a product called UltraDev, the technology within Drumbeat represents a breakthrough in Web development software on three fronts two of which are complementary to Dreamweaver

First, Drumbeat's GUI provides new convenience for Web developers. Every Web authoring program out there has adopted a multi windowpane interface with tabbed views of the main edit window Drumbeat has taken this a step further by making the sizing of the secondary supporting windows such as Site Tree, Asset Centre and Properties, much more convenient To the all important Asset Centre, Drumbeat adds a convenient window to view images animations, and videos in a very useful thumbnail format

But even more importantly Drumbeat supplies at least a dozen ways of doing single click filtering and sorting of the files/assets in the Asset Centre. The attic and basement windows also provide very handy window panes for graphic objects and scripting components. Drumbeat's interface is very polished for a new product It redefines the state of the art for Web developer tools in new innovative directions

The second area in which Drumbeat her alds a breakthrough is in its support of database connectivity True, other products such as Adobe's new GoLive 5 0 (which will be released later this year), Macromedia Dreamweaver 3 0, Microsoft FrontPage 2000 and SoftQuad's HoTMetaL Pro 6 offer database connections but they are often add-ons or proprietary solutions

In contrast, Drumbeat has incorporated database connections directly into the products with wizards templates and Smart Elements that speed up the development of database Web applications Drumbeat 2000 also supports two of the most popular methods for Web database connectivity: Active Server Pages (ASP) from Microsoft and Java Server Pages (JSP) from dozens of vendors This should mean that database connectivity will no longer be a poor afterthought in Web developer tools

Finally, the most important breakthrough in Drumbeat 2000 is its template tree This is one of those elegant solutions that Drumbeat's competitors will see and say "ahhh," then imitate in their own software The idea is quite simple with Drumbeat Web designers start by creating templates of pages rather than by creating individual pages The template is a kind of mock up of the common elements shared by many Web pages In some cases users will want to add two different sets of derived features—which is where the template tree comes in The lower templates inherit all the objects, text and features from the template above in addition to adding their own Some of those features can be made read only; other features and objects can be marked as not to-be overlapped Attach a Web page to any template and it in turn inherits all of that template's features

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Cycore adds interactive 3D spin to e-commerce Web sites

By Tom Venetis

Anyone running an e-commerce Web site knows there is a huge gap between the number of people who view products online and the number who actually open their wallets to buy.

Cycore hopes that its recently released Cult3D rendering tool and engine will change all that.

"The big thing that has been missing in e-commerce has been the hands-on, service-oriented experience that people get when they go into a real store," says Tod Iannuzzi, chief executive officer of Toronto-based Cycore Canada. "It is that experience that separates why people shop at one store over another."

And it is that experience that Iannuzzi says will be created for Web sites with Cult3D. Cult3D allows designers to create fully rendered 3D interactive models that any online shopper can download. Web merchants can create 3D images of their products that potential customers can rotate and view from all sides in their Web browser using a downloadable rendering engine (available at http://www.cult3d.com).

Cult3D works with existing 3D files created in programs such as 3D StudioMax that allow the designer to add rotation points to an image. Once rendered by the Cult3D software, online shoppers can control the rotation of the image in 3D space with their mouse. They can also interact with the virtual object, clicking on buttons with their mouse, for example.

Several Web sites already employ the Cycore software. JVC (http://www.jvc.com/featprod6.html), for example, uses Cult3D to showcase several products, such as its GR9800U digital video camera and FS-SD7 stereo. Potential buyers can rotate both products and play with some of their features.

"Sites are reporting more sales and the amount of time people are staying at a site has more than doubled because people start playing with the image," says Iannuzzi.

He says that the strength of Cult3D is the small size of both the downloadable engine and image files. The engine itself is about 700KB and the images, depending on their complexity, average under 200KB. Small files are important as many people do not yet have high-speed connections to the Internet, so would likely leave a site rather than wait for a large image to download completely. According to Iannuzzi, as soon as an image file starts to download it is viewable and gets sharper and more detailed as the downloading and rendering finishes.

"The plug-in is the core of the whole system," he continues. "In order to move high-quality objects on your screen in real time, the computer has to draw the images as it moves them about in real time. That normally takes a lot of hardware, but a normal computer does not have that hardware, so we do it through software."

The engine can be integrated into Microsoft PowerPoint and Adobe Acrobat PDF files, allowing authors to embed 3D images that can be manipulated by viewers.

Iannuzzi also sees educational possibilities for Cult3D, saying instructors could use it to create interactive presentations that students could download and explore.

Recently, the CBC used Cult3D on its Web site as part of its program on Byron Smith's ascent of the Mount Everest (http://www.cbc.ca/everest2000). Cult3D's technology allowed viewers to follow the climb, and detailed the intricacies of mountain climbing, such as tying ropes. ❑

Cycore's Cult3D software gives Web surfers a 3D view of an online vendor's products.

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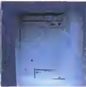

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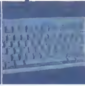

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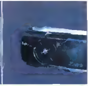

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Designing for tomorrow's Web

Continued from page 22

ny, the ASP', has appeared in the past three years. Such companies provide customers with turnkey Web systems very quickly and in the exact bundle required.

Companies including Concentric, Corio, Interliant, IBM/GS Questral, USWeb and others offer packages of three types of services.

First, ASP's provide Web hosting either at your site or theirs, hos manage all the hardware and software required to deliver Web services.

Second, ASP's also offer to develop Web applications—either jointly with you or entirely with their own development staff—to meet your specifications.

Finally ASP's also provide ongoing technical support to either maintain your Web presence with the all-important stream of new features and additional services, or to bring your own staff up to speed as quickly as possible. Of course, application service providers use SCM, CRM, EIP, ERP and other Web generator software to help speed delivery of robust and reliable Web systems.

WebDev

In fact, ASP's use the same core of development tools as Web developers (WebDevs). Inevitably, organizations have a whole range of very specific Web requirements that can't be effectively met by external application service providers or packaged programs. Their sites are developed and tuned by Webmasters and developers whose core knowledge is HTML, but increasingly aided by a whole array of Web software such as

- **ASP:** The first use of ASP was with Microsoft's ASPs (to link databases to HTML.)
- **MAC:** The whole range of Macro languages like JavaScript, JScript, or VBScript used in Web development.
- **JSP:** With servlets, JSPs are rapidly replacing slower, less secure CGI and Perl/Python scripts.
- **J2EE (Java 2 Enterprise Edition):** Provides failover, security and robust enterprise-calibre Web applications.
- **EJB (Enterprise Java Beans):** Provide out-of-the-can, sophisticated distributed processing services.
- **XML:** Breakthrough data identification and interchange standard. ❑

Jacques Surveyer is a consultant who can be found Web trolling at jsurv@inforamp.net.

New tools redefine Web development

Continued from page 27

Drag and drop a Web page from one template to another and you have changed the page's complete layout and format—but in a standard way.

As is the case in Dreamweaver, some objects can be marked for no overlap in Drumbeat. This means that any attempt to overlay that object in a Web page or lower or derived template will be rejected by Drumbeat's visual editor. The inheritance tree model is very rich. For example, other derived objects that are not marked read-only could be overridden. Say the base template has an image labeled logobig.jpg. In a lower template we'll call templ4, logobig.jpg needs to be substituted by another image. Just insert templ4.logobig.jpg and Drumbeat knows to replace the inherited image logobig.jpg with templ4.logobig.jpg.

Drumbeat's template system is so very rich that the visual programming possibilities are stunning. ❑

Calendar full of gadgets

NB—Los Angeles-based eCal, which provides online calendar technology Webmasters can add to their sites for free is adding some new widgets to its communal organization technology. New Web sites can add eCal's "My Own Event" buttons anywhere they may present date-sensitive information, such as an upcoming event. When clicked the buttons can pre-fill the appropriate date on a user's centrally hosted eCal calendar. The company also announced a second gadget, called eCal RSVP, an invitation system providing Web surfers with an interactive way to plan events. RSVP allows users to invite friends, family and colleagues to an event by creating a personalized invitation. If invitees are using an eCal-powered calendar the event will appear automatically on their calendars. Others will have eCal calendars created for them automatically.

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Dell captain stays Internet course

By Stefan Dubowski

The company that built its fortune online is betting its future on the Net. During a keynote speech before the Canadian Club in early April, Dell Computer Corp.'s co-founder and chief executive officer said the computer manufacturer is changing direction, but not its spots.

Michael Dell started his company in 1984, building customized computers. Since then the corporation found success with the same distribution model, albeit on a larger scale. Dell Computer sells directly to the public.

But on this early spring day two overhead projections with the words "Internet Infrastructure Company" flanked Dell as he spoke. The words indicated a new line of servers for Internet service providers (ISPs), dot-com firms and "click and mortar" companies.

According to Dell, his company has no plans to abandon the consumer market.

"Today Dell is number two worldwide, number one in the U.S. and number three in Canada," Dell said. "We're also the industry leader in growth and profitability."

Dell attributed his company's success to its direct sales paradigm.

"Consider the guy at the computer store whose job it is to guess what you want to buy," Dell said. "It's very hard for them [the competition] to develop a relationship with the customer."

> There are a lot of ideas out there and not all of them will work... [But] there are significant opportunities if you're willing to go after them.
>
> *—Michael Dell, Dell Computer*

With such success, why is Dell Computer making a move into the Internet infrastructure market?

Dell said International Data Corp., a high-tech industry analyst firm, estimates the Internet infrastructure economy will grow 32 percent to US$370 billion by 2003. And Boston Consulting Group, another high-tech think tank, predicts the business-to-business market will grow by a factor of eight in the next three years.

Business-to-business (B2B) is in itself big business for ISPs and e-commerce firms.

"There are a lot of ideas out there and not all of them will work," Dell said. "[But] there are significant opportunities if you're willing to go after them."

He pointed to Canada as a prime place for Internet success.

"I think Canada has great potential to take advantage of the Internet," Dell said. "Canada is wired... Fifty-eight percent of Canadians have Internet access at home, at work or at school."

But, in response to a question from the floor, Dell said the digital divide—which separates richer countries from poorer ones with relative technology—was not the fault of high-tech firms.

"It's not a part of the digital divide," he said, putting the blame on an "industrial divide" instead. "The problem is, there are real-life economies here."

In other words, it's hard to build a factory where roads don't go. Nonetheless, "the communications industry is making its way into the Third World in an aggressive way."

As far as Dell is concerned, his company stands strong against the mobile invasion.

"Nokia [the Finnish cell phone manufacturer] likes to say more people will use the phone than the desktop to access the Internet. That may be true, but they'll use them for different things. It's like saying more people walk [as a mode of] travel than go in cars. It may be true, but they go at different rates."

And as for Dell Computer's Internet infrastructure direction, he said the company's success depends on two things: broadband connections and investment. The investment came (and some say went, given the poor performance of technology stocks lately); meanwhile, broadband connections are popping up all over North America.

The company could no longer afford to ignore the growing B2B market, Dell said.

"There's a new [illegible] the risk of e-limination if you don't understand this new business."

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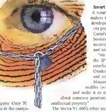
Getting personal with security

If you believe what you read, the most common corporate security threats are external. But, recent research shows security breaches originating within a company are a bigger problem. Companies are responding with personal identification schemes that include smart cards and biometrics.

By Tom Venetis



Every week it seems there is another news story about a hacker breaking into a corporate computer system to steal credit card numbers, deface a Web site or access sensitive company information. Companies are spending millions of dollars each year to protect themselves from such outside attacks.

There's no disputing the damage an external attack can wreak, but the fact is companies are more likely to experience security breaches that originate from within. The most recent *Computer Crime and Security Survey* conducted by San Francisco-based Computer Security Institute (CSI) and the San Francisco branch of the Federal Bureau of Investigation (FBI) found that in 1999 55 percent of companies surveyed reported unauthorized access by someone inside their company. Only 30 percent reported serious security breaches from outside the company during the same period.

Internal security breaches can come from a variety of sources: a disgruntled employee who has access and wants revenge, a thief who gains access to a system because the password is left on a sticky note attached to an employee's monitor, or a curious employee who eyes someone typing in a password, then uses it for unauthorized access.

Smart card security

A variety of companies, from computer makers to third party manufacturers, are developing ways to address internal security problems. Recently, Hewlett Packard Canada released the HP Vectra VL 600, a business PC with several built-in internal security solutions to prevent tampering and unauthorized access.

"We are the first vendor to introduce the IP [intellectual property] security interface card in a system," says Mike Oreskovic, product manager for desktop and mobile computing at HP Canada's Mississauga headquarters. "What that enables [you to do] is to take your intranet and make it an extranet without having to worry about someone penetrating your system and taking your intellectual property."

The Vectra VL 600's other security features include an external smart card reader that can be used to authorize access to the system. A smart card looks like a debit or credit card but has a built-in microchip. The chip can be programmed so that someone logging onto a system must first swipe the card through the reader then key in a pass

Continued on page 38

E-commerce fights poor security image

When consumers hear reports of thousands of credit card numbers being lifted from online commerce sites, they're understandably nervous. Companies are working to fix the reality and perception of secure online shopping

By Tom Venetis

E-commerce companies and analysts have been assuring consumers that giving out your credit card information to an online business is as safe as giving it to the waiter at a restaurant.

Several recent events, however, have raised questions about just how secure online purchasing is. In what some are calling one of the largest cases of cyber theft ever reported, an intruder is alleged to have stolen nearly 500 000 credit card numbers from an e-commerce site, then hidden them on a U.S. government database. The theft apparently happened in 1999 but only came to light recently when details were leaked.

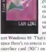
In a similar case this year, it was reported that a hacker accessed CD Universe and made off with the credit card numbers of its customers. And to prove no one is safe, authorities in the U.K. arrested a Welsh teenager for allegedly hacking into an e-commerce site and getting the details of Microsoft head Bill Gates's credit card.

David Thompson, assistant vice-president for marketing at Citibank Payment services in Toronto says while such stories certainly grab headlines, people shouldn't feel they have to stop shopping online.

"It is no different from someone breaking into a brick-and-mortar store, cracking open the safe and walking out with paper records of credit card transactions," Thompson adds. "I don't think that by itself it should send alarm bells that says security is not of any concern in the industry. There were billions of dollars of credit card transactions done online over the

Continued on page 40

Etherlink Server works best in bunches



The 3Com Etherlink Server is more than just a good Fast Ethernet card. It's a specialized card designed for servers with support for Windows NT/2000 and NetWare but not Windows 98. That's not a limitation since there's no reason to use this network interface card (NIC) on a server running Windows 98. The bottleneck to performance on a Windows 98 server is likely to be something other than the Ethernet card.

Etherlink Server 10/100 PCI NIC 3C980C-TXM

From: 3Com Corp
http://www.3com.com
Supports: Windows NT 4.0/2000, NetWare 4.2/5.0
System requirements: available PCI slot, 10Base-T Category 3, 4 or 5 UTP or 100Base-TX Category 5 UTP cable via RJ-45 connector
Estimated street price: $160

Although small offices often use a desktop computer as a network server, there are specialized designs that offer many benefits. Specialized servers tend to be more expandable. They also use higher-grade and redundant components, which make them more resistant to a wide variety of error conditions.

3Com brings this kind of thinking to the Ethernet card. If a server has just one, the NIC is a single point of failure. This can't be tolerated in a computer that needs to be up all the time. What are the consequences of a mail or file server in your office that loses its connection to the network?

The 3Com Etherlink Server is a 10/100 Mbps PCI NIC that incorporates some advanced technology to provide high performance and high availability for Windows and NetWare networks.

Some server NICs have coprocessors to reduce the load on the server's CPU. This is an expensive approach to performance, although it is sometimes justified. This card achieves a similar effect at a lower cost by employing 3Com's Parallel Tasking technology. This feature alone justifies the incremental price difference relative to a desktop NIC.

Although this card can be used as the only NIC in the server, it has important features that come into play when it is

Continued on page 37

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- 52x cdrom, 120watt spkrs & 1.44mb drv
- ATI Xpert 128 16mb mbd [illegible] DVD decoder [illegible] for fast playback
- Win98 & 17" [illegible]
- Motorola V90 VF modem & PCI128 sound
- 104 kybd, mouse & 2 mo free internet*
- WP Office Suite 2000 c/w CD

PIII-533 Celeron 66mhz $1422 or 56
PIII-533 133mhz $1566 or 60
PIII-550 133mhz $1976 or 98
AMD-600K7 200mhz $1616 or 61
AMD-700K7 200mhz $1716 or 98
AMD-800K7 200mhz $1866 or 72
PIII-667 133mhz $1716 or 98

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- ATI Fury Pro [illegible]
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PIII-600 133mhz $2054 or 78
AMD-600K7 200mhz $2021 or 77
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- MM kybd, MS mouse & 2 mo free internet*
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PIII-667 133mhz $2863 or 97
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- (Wonder has video in/out & Tv Tuner)
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- WP Office Suite 2000 c/w CD

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PIII-600 133mhz $3043 or 116
AMD-600K7 200mhz $2934 or 112
AMD-700K7 200mhz $3071 or 117
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ULTINET NOTEBOOKS XP SERIES

THE BEST

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- Intel 3D agp video (integrated/shared)
- 10/100 network chip (integrated)
- Integrated 3D sound
- 17" .28dp monitor (get at least .27dp)

This is a system that you should never buy because of the limited upgrade capability and the use of obsolete PC 100 technology.

PIII-550 130mhz $1166
PIII-533 130mhz $1196
PIII-550 130mhz $1203

This PC is for comparative purpose, it runs on a [illegible] mbd with 8PC 100 [illegible] agp slot

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- WP Office Suite 2000 c/w CD
- Ac pwr/chgr [illegible] & carry case
- S video output, LS 120 drv is optional
- [illegible]

Intel Celeron 466mhz $2535 or 34/m
Intel Celeron 500mhz $2631 or 34/m
Intel Celeron 533mhz $2637 or 96/m

The [illegible] 12.1" notebooks, do not buy older [illegible]

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- 1mb ESS sound with spkrs & mic
- 24X cdrom & 1.44mb [illegible]
- 2X PCMCIA slots, 1S, 1P [illegible] USB ports
- Corel WordPerfect Office 2000
- Ac pwr/chgr [illegible] carry case
- [illegible] output, cardbus lcd & vga out
- Smart bay for 2nd batt, hdd & LS 120

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Intel PIII-600mhz $3110 or 118/m
Intel PIII-650mhz $3196 or 124/m
Intel PIII-700mhz $2990 or 124/m
Intel PIII-750mhz $3537 or 124/m

[illegible] PIII 600 & 1P. [illegible] a PIII-600 [illegible] This notebook is our most popular model

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Intel PIII-650 $3289 or $128/m
Intel PIII-700 $3486 or $132/m
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Upg above 14.1" to 14.1" lcd $125
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- 1mb ESS wave snd with spkrs & mic
- 24X cd & 1.44drv, [illegible] $200
- 2X Pcmcia slots, 1S, 1P 1USB ports
- Win98, numeric kypd & ac adapter
- Corel WordPerfect 2000, LiON batt

Intel PIII-533 Celeron $3205 or 122/m
Intel PIII-600 $3082 or 126/m
Intel PIII-600 $3098 or 130/m
Intel PIII-650 $3348 or 151/m

This unit is also sold by some similar companies [illegible]

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- 8X DVD & Cambridge PC Works Subwfr
- GeForce256 video mbd 32mb DDR ram
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- USR V90 Sportster & Platinum Live256
- 104 kybd, Ms Explorer mse 2 mo free net*
- WP Office Suite 2000 c/w CD
- www.ultinet.ca [illegible] this or any pkg [illegible] 24hrs a day

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Etherlink Server works best in bunches

Continued from page 34

used in combination with other NICs of the same model.

One top feature consists of Resilient Server Links (RSLs). If the primary NIC fails, the server switches automatically to a backup NIC with no downtime. This happens without users being inconvenienced or even aware of the event.

Today's networks need to support an increasing number of high bandwidth applications, as well as a growing number of users who connect from desktop computers via 100 Mbps Fast Ethernet links. A server that has a 100 Mbps link to the switch is a bottleneck on the network. 3Com has developed a load balancing technique that aggregates multiple server links to work as a single, logical connection between a server and switch. This technology in the Etherlink Server NIC distributes server traffic evenly across multiple links to boost bandwidth to and from the switch. This can scale up to 800 Mbps of bandwidth, and works with all standards based switches and routers.

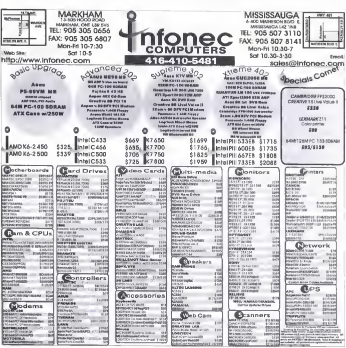
For servers that must be up all of the time, there's Hot Plug PCI. This allows NICs to be removed, installed and swapped without powering down the server. In larger networks, the downing of a server has a rippling effect. It can cause numerous events that require time and attention, so this is not an inconsequential feature.

Another interesting feature is 3Com's Self-Healing Driver (SHD) technology. This means that the server link is constantly monitored for error conditions that could lead to performance degradation or failure. If SHD software detects such conditions, it takes appropriate corrective action. This may include resetting the NIC driver to clear a stalled interrupt, verifying the integrity of the link and driver interactions, or even "failing" and passing the baton to another link.

Previous versions of the Etherlink Server had support for up to 16 virtual local area networks, which was a constraint for larger networks. That number has now been bumped up to 64.

In addition to its excellent performance and feature set, this card will operate in 3.3 volt and 5 volt slots, comes with superior diagnostic utilities and offers a lifetime limited warranty.

It's almost an afterthought to mention that it is easy to install. The price is surprisingly low for all of this. ❑



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Getting personal with security

Continued from page 34

word or number to gain access. The Vectra VL 600 can be configured so the machine won't even properly boot up past the BIOS unless the person keys in the right password or number. If someone has stolen the card and tries to randomly guess the access code, the card will be wiped and made useless after a third wrong guess.

"Also, you can't pull the information off the card since it will be destroyed," adds Oreskovic.

The Vectra VL 600 also comes with a master passkey system the locks the chassis of the system, thus preventing anyone from getting inside. A common problem many companies have had is theft of internal computer components such as RAM or processors. The Vectra VL 600 stores an inventory of its components, and will alert the MIS manager if its lock is tampered with. If RAM is stolen, the MIS manager will find out instantly.

In Europe smart cards are popular with both consumers and corporations. In North America, they have taken a bit longer to catch on but they are beginning to make headway in the corporate environment.

Montreal based E-Z Lock PC Inc. has been pioneering smart card technology on this continent since the late '90s, particularly for corporate environments. Because of the resistance many have shown to smart cards, the company developed a USB token that is similar to a smart card.

"It is basically the same as a smart card but wrapped into a USB token about the size of one's pinky and can be plugged right into the USB port on a computer," says Daniel Sommer, general manager for E-Z Lock.

Much like the smart card system that comes with HP's Vectra VL600, E-Z Lock's token system can be used to authorize access to systems and information. In order to operate a machine, a person must insert their token into the reader, then input the necessary access code.

The token is also flash upgradable, allowing a company to manage passwords. For example, the company could implement a policy that requires people change their passwords weekly to add an extra level of security to systems. The cards can also be used to authorize access to certain kinds of information or servers. No matter where a person might go in a company, that token would only allow them to access what the company wants them to, whether they are at their desk or in another department.

Sommer says this is particularly popular in hospitals where doctors move about constantly but need access to their data wherever they are.

This kind of technology has implications for consumers as well. Sommer sees a time when such tokens could be used by consumers for secure Internet banking.

"We are developing a system of e-banking not only for people to have secure access [to their accounts], but also direct access since we can burn the URL onto the key," Sommer adds. "So you insert the key and you are automatically logged onto the Web site. This would be very good for people who just don't like or feel comfortable using computers."

Using such technology to secure online banking is what Saflink Corp. in Redmond, Wash. is focusing on, particularly with Toronto-based cyberbank ING Direct.

Biometrics: your genes can't lie

SafLink provides a number of biometric technologies and solutions that companies can use to secure data or systems internally. Biometrics essentially rely on a unique physical trait that can act as a security key in place of a password or number. The physical traits can include fingerprints, voice prints, retinal scans, or scans of facial features—all of which can't be duplicated.

SafLink is working with ING Direct to incorporate SecuGen's EyeD mouse into a system that would allow for secure Internet banking. The EyeD mouse is a thumbprint sensor integrated into a standard PC mouse.

"ING Bank of Canada [ING Direct] is a virtual bank with little in the way of brick and mortar facilities," says Walter Hamilton, vice president of sales and marketing for SafLink. "Transactions today are done either using telephony or the Internet. And for the Internet, they have decided to use fingerprint technology from SecuGen."

With this system, the mouse scans a customer's thumb to confirm their identity before granting them access to their online accounts. Currently ING Direct has deployed the mouse to some 500 customers in Toronto on a trial basis to get feedback on the system. If the customers like it, ING plans to offer it to all of its banking customers as an option for additional security when they bank online.

Biometric technology will become more common in consumer devices and systems according to Dan Reio, vice-president of sales and marketing for Sample Technology in Mississauga, Ont. His company distributes a variety of biometric solutions, such as secure keyboards and desktop scanners from Key Tronic, Pro, NEC, and Digital Persona—the latter of which offers a USB fingerprint scanner.

American Express is now starting to roll out smart card technology in some of its credit cards. In the future, these cards might contain a person's fingerprint that would need to be provided in order to complete a transaction. The advantage is such a system would reduce the incidence of credit card fraud and help an online business confirm the identity of the cardholder. And as with all smart cards, the information on the card would be destroyed if someone tries to tamper with or access the information.

And just in case anyone has any ideas, most fingerprint and thumbprint scanners can tell if the finger being scanned is dead or alive—so cutting off someone's digit to get at their information or accounts isn't an option.

Marlton, N.J. based IriScan is also looking at biometrics to offer better security to consumers, in this case using iris-scanning technology. Much like a fingerprint, every iris is unique—a fact recognized as far back as the 1800s. IriScan technology allow computer systems to read someone's iris in order to allow them access to a system or data. Recently, IriScan worked with Bank United in Houston, Tex. to incorporate iris scanning technology into the automated teller machines (ATMs) at three of its branches. To access an account, a person simply walks up to the machine and has a picture taken of his or her iris. If that iris matches one the bank has on record, the person is allowed to access their account.

Bill Voltmer, senior vice-president of sales and marketing for IriScan, says such iris-scanning technology could also be used to secure online transactions.

"Imagine going to a Web site to buy a book," Voltmer adds. "You could use your iris so you don't have to put in any credit card information. You iris code could be matched by someone, like a certificate authority, that would confirm your identity and acknowledge that you have good financial credit."

But a problem that some people see with biometric technologies is that they tie a person to a particular machine or network. While it may work in a corporate environment where people most often work at a single machine all day, the average consumer likes the Internet because it offers the flexibility to log in anywhere, at any time, and through a variety of machines. With biometrics as it is now one is tied to either one machine with the biometric technology or to places where biometric technology is already in place.

In recognizing this issue, San Jose, Calif. based Cyber-Sign Inc. has developed a way to incorporate biometrics in a variety of devices, some of which are portable. Instead of relying on an individual's unique fingerprint or iris scan, Cyber-Sign uses handwriting—but not merely signature identification. As anyone knows, a skilled artist or forger can reproduce a signature that, to the naked eye, is indistinguishable from the original. What a forger or artist cannot do is mimic the way a person actually produces that signature, the subtle pressure changes, pauses, and pen strokes used.

Cyber-Sign has developed an algorithm that recognizes how someone actually produces their signature, noting pressure change, timing and velocity. The algorithm can then be incorporated into a variety of devices that have some kind of handwriting recognition system.

"This can include PDAs [personal digital assistants such as the Palm Pilot or Pocket PC devices], smart cards, PCs, and even the little pads that are built into laptops to move the mouse around," says Dennis Quiggle, director of marketing for Cyber Sign. "We worked on the algorithm so that it is hardware independent."

Sharp Electronics has put Cyber-Sign's algorithm into its Power Zaurus PDAs. Sharp uses the Cyber-Sign system to provide pre-OS security for the device, requiring input of a signature in order to boot the system. If the signature is rejected the device does not boot up, locking the person out.

Quiggle says that in the future, Sharp wants to have its PDAs connect to the Internet or a network. When that happens, the Cyber-Sign system could be used for such things as electronic transactions, since a person could then provide an online merchant with a signature that can be checked against what a credit card authority has on file.

Biometric portability is also an issue IBM is looking closely at. Last year, it launched its Client Security Solution that used an embedded chip on a motherboard that would perform key encryption and produce digital signatures for authentication of users and machines.

Shortly after unveiling the technology IBM formed the Trusted Client Platform Alliance (TCPA) with Intel, Microsoft, Compaq and HP. The alliance's mandate is to look into incorporating embedded security technology into a variety of devices and come up with an industry standard. The TCPA hopes to have such a standard available for review by various standards bodies later this year, and by 2001 the first products will begin rolling out with that technology built in, including portable, Internet ready devices. ❑

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E-commerce fights poor security image

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last year, and there have been very few reported cases of similar activity."

A recent international study by Deloitte & Touche and the Information Systems Audit and Control Foundation found that there was a high degree of satisfaction among e-commerce business executives in charge of online security that private information such as credit cards are safe on e-commerce sites. The study was based on 150 personal interviews with managers and executives in 14 countries and included additional responses from executives in Asia, Europe and Africa.

Still, the scale of recent security breaches should cause many to ask if enough is being done to make sure financial and private information of consumers is being protected.

Haste makes holes

According to some analysts, part of the security problem is that in the mad dash to get online and reap cyber profits, many companies are making fundamental mistakes in how they store sensitive, private information. One common error is to store credit card numbers on the same server that hosts the Web site, or on another server that can be accessed easily through the Internet.

Paul Hino, president of Sundex Information Systems Inc. in Toronto says that kind of lapse makes it very easy for a hacker to get at the information. But he also understands why a business would want to keep that information easily accessible.

"What companies would like to do is store as much information about you as they can in order to help the consumer," Hino adds. "What a nice feeling to be able to go to a site and they already know your shipping address, credit card numbers and preferences. It's a fantastic service. But at the same time, people just don't seem to realize there is a problem doing that."

Hino's recommendation is that companies should avoid storing such sensitive information on easily accessible servers. Any business thinking of going online should seek outside, professional help in setting up their systems. The reason is simple. Most businesses simply do not have the expertise to either put the necessary systems into place, or to make sure they are set up properly.

"Also have somebody look at the site after it is finished to find any security holes," Hino adds. "It is best to do that before it goes live in order to fix them. And after it goes live, have someone check again to see if anything was missed in order to protect information. The main thing is to make sure your server is set up by security experts."

Services available

One company that makes a point of keeping credit card information secure is Toronto-based Valu net Corp. Its Cpac Secure Universal Payment System is a multi-platform payment gateway that allows credit card transactions to be conducted in a real-time bank-endorsed manner, but without the business having to actually store the credit card numbers.

"What we do is act as the cash register for our clients," says Dave Lucatch, chief executive officer of Valu net. "When the transaction comes in, it is automatically moved offline to the credit card clearance facility that all stores that take credit cards use. So when we move it offline and we get an authorization (from the bank) all we send back (to the business) is the authorization number. The card number never stays resident on any part of the Internet."

The Cpac system also uses the Secure Electronic Transaction (SET) protocol that encrypts information that is transmitted electronically. Even if anyone were to get access to such a transmission, all they would find is the authorization number, which is essentially useless to them.

Valu net stipulates that a merchant must have a valid merchant account in order to accept credit card payments.

Ottawa-based Entrust Technologies Inc. has also been working to make online transactions more secure by using solutions based around Public Key Infrastructure (PKI) of which it is one of the world's experts. Entrust helps a company manage and securely transmit the digital certificates that businesses use to identify themselves to a potential buyer online.

These certificates also are necessary in creating the Secure Sockets Layer (SSL) session whereby sensitive information can be sent by a customer safely to an online business. A customer can know if such a secure session is taking place because the little lock symbol on their Web browser will clamp shut. Users can click on that lock to confirm whose site they are on. And once an SSL session is activated it is very difficult for someone to break into it to steal private information.

"It is like reverse caller ID," says Ian Gordon, senior marketing manager for business to customer (B2C) solutions for Entrust. "When you hit Amazon.com and the lock comes on, then you are pretty sure that is the site you are supposed to be at."

Banks are now also starting to get into the act of providing businesses with secure online transaction solutions. The banks see this as a natural extension of the services they already provide to businesses, which need to work with the banks to set up merchant accounts and credit card payment methods for their regular brick-and-mortar storefronts.

Citibank Canada has been offering businesses secure means of transmitting credit card information for some time and has been certifying merchants so consumers can feel comfortable doing business with them.

"The lines between us and the retailer—the physical transmission of the credit card information—is very secure," says Citibank's Thompson. "We use encrypted technology SSL, and there has been no reported cases of people taking credit card transactions mid flight."

Still, some businesses complain that banks are not doing enough to help them get and implement the necessary security measures they need for online commerce. They say the fees banks require to securely take credit card transactions online are prohibitive to many smaller businesses or online startups. In some instances merchant fees can range between $10,000 and $100,000—pretty steep if a business is just starting out and watching every penny.

These fees may cause some businesses to compromise on the security as they look for less expensive solutions.

This was a problem Richard Pelzer, pres

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Pocket PC slicker than CE handheld

By Tom Venetis

Microsoft Corp's recently launched Pocket PC computing platform is its strongest move so far in its effort to become a dominant player in the handheld device market, which currently belongs to Palm Computing.

Elliot Katz, marketing manager for Pocket PC at Mississauga, Ont.-based Microsoft Canada, says International Data Corp's (IDC) numbers tell him the Pocket PC could capture 40 percent of the handheld market share by 2003.

Pocket PC is one of the cornerstones of Microsoft's vision of empowering Canadians to have access to their data, both personal and corporate, anytime and anywhere, he adds.

What should make the Pocket PC platform appealing to handheld computing device users is its user interface, revamped from the original Windows CE, and additional support for Web browsing and multimedia capabilities. Devices that incorporate the Pocket PC operating system will offer improved versions of Outlook, Word and Excel as well as a Pocket Internet Explorer, Windows Media Player and a Microsoft Reader for e-books.

Symbol PPT 2700

"Every pixel on every screen on this operating system has been updated," Katz adds.

The inclusion of Explorer and multimedia support is in recognition of the fact that many customers want these devices to be personal entertainment centres as well as business tools. He suspects that many will probably use the Internet capabilities not just to access corporate information but to download MP3 music and videos.

"There is a segment that we like to call early adopters of technology that have shown a lot of interest and [have] purchased these devices," Katz continues. "And the addition of the Media Player, the e-book reader and the ability to play games makes it an interesting device to those users. But what we have also learned is that the mobile professional and enthusiast overlap and the professional user also wants to have personal diversions like listening to music, playing games or reading a book."

At the launch of the Pocket PC in Toronto in late April, Microsoft introduced several of its hardware partners who will be rolling out the platform on a variety of handheld configurations.

HP Jornada 540 and Compaq iPaq Pocket PC

Thornhill, Ont.-based Casio Canada showcased its Cassiopeia line of Pocket PCs. Featuring full-colour displays, the line also offers full multimedia support for movies, still images and music. The Cassiopeia E-115 comes with 32 MB of RAM and a CompactFlash II card slot that can be used to add additional memory through CF II devices such as the IBM microdrive, a mini digital camera or a modem. Casio's EM-500 is aimed at the youth market. It comes in five colours and supports the MMC/SD (multimedia card

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Darwin 1.0 source code released online

Apple has announced the availability of the source code for the core of Mac OS X. Named Darwin 1.0, the source code is available for download at http://www.apple.com/darwin. As well, a CD-ROM containing the source code can be ordered for US$20 from http://www.apple.com/developer.

Apple announced the release of Darwin 1.0 at the Internet World show in Los Angeles in early April. In a statement at the event, Apple vice-president of marketing Phil Schiller said: "The core of Mac OS X is the only mainstream operating system following an open source model. The new Darwin 1.0 posting includes some of the most advanced operating system technology available, and it's open to our customers and developers so that we may collaborate on the future of the Mac OS."

Darwin is based on Mach 3.0 kernel technologies and is processor-independent, allowing software development to take place on Intel x86 or Power PC-based computing platforms. Darwin doesn't represent a total open-source access to the forthcoming Mac OS X, but according to Apple, it will allow developers "to enhance the feature set, performance and quality of Mac OS X products in partnership with Apple engineers."

Also announced at Internet World was an open-source Darwin Streaming Server software to allow for streaming media distribution via the Internet. Expected for release in May, Darwin Streaming Server is aimed at attracting developer support on a variety of computer platforms, including Linux, Windows NT and Solaris, as well as the forthcoming Mac OS X.

Free iMovie download for G4s

Apple has announced that owners of PowerBook and Power Mac G4s can now download iMovie for free.

The video-editing software, which was introduced in October, comes preinstalled on all iMac DV and iMac DV SE systems. With iMovie, users can import footage from a digital video camcorder directly into their FireWire-enabled system to edit it and add special effects. Completed iMovies can be stored on the computer, exported to a camcorder for viewing on a standard TV or VHS

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Palm versus Pocket PC

Slim platforms offer different results

By Issie Rabinovitch

Recently I've spent a lot of time using small devices running the Palm OS and the new Pocket PC OS from Microsoft. I think I've proved that you don't really know how something will work until you try it yourself over an extended period of time. In other words, I learned a lot.

I found that the active matrix colour screen on the new Palm IIIc is more than a frill. Although few applications for the Palm use colour extensively as yet, the ones I have used seem to benefit from it. That's not a scientific observation or even a very objective one, but I've stumbled onto some strong anecdotal evidence of the benefits of colour and bright screens.

I've played hundreds of games of SubHunt on both a Palm Vx and a Palm IIIc. My scores using the brighter, more colourful screen of the Palm IIIc average about 30 percent higher. I've played enough games to rule out this difference as a statistical anomaly. I doubt that an improvement of this magnitude extends to other applications, but I'm confident that the new colour Palm IIIc makes everything at least a little better—battery life excepted.

I'm quite satisfied with the Palm platform, but that doesn't mean that I'm not receptive to the advantages of the Pocket PC. Quite the contrary. For the past month (prior to its official release) I've been working with a late beta version of Pocket PC OS running on hardware designed for an older version of the platform. The shipping version running on a new generation of sleeker and more powerful hardware will obviously be more impressive but not so different as to invalidate my current impressions. The Pocket PC is a more powerful platform than Palm. It leads to devices that are more like very small computers than enhanced organizers.

Although Microsoft has done a lot of work to make the interface easier to understand and navigate, it still falls short of what the Palm has accomplished. After dozens of hours with two Pocket PC computers, I still find myself annoyed by the long sequence of steps required to do some basic tasks. However, as a result of my Windows experience, I've never been confused about what to do. The logic of the Pocket PC is similar to other Windows OSes.

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Pocket PC slicker than CE handheld

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memory system) standard, which can hold up to 64 MB of information.

Mississauga, Ont.-based Hewlett-Packard Canada rolled out its HP Jornada 540 series of Pocket PCs, which come with Yahoo Messenger, HP's Home Menu and Task Switcher, an application called PeaceMaker for exchanging information between a Pocket PC and a Palm device, and support for New York-based Socket Communications' Digital Phone Card for wireless Internet access.

Richmond Hill, Ont based Compaq Canada also rolled out its iPAQ Pocket PC, which the company says will be shipping in June. Built around Intel's StrongARM RISC processor, it comes standard with 32 MB of RAM and with a set of slide-on expansion packs for additional functionality. A PC Card expansion pack will let customers of the iPAQ have a wireless connection to the Internet. A CompactFlash expansion pack allows for the addition of extra storage cards and third-party options, such as a modem or bar code reader.

In a veiled reference to Palm's devices, Microsoft's Katz and the variety of Pocket PC hardware configurations will give consumers a greater choice in finding a device that more fits the kind of tasks and flexibility they require. They will not be restricted on one type of hardware configuration.

Palm's response

But Palm is certainly not taking the challenge of the Pocket PC lightly. Soon after the Pocket PC made its debut, Palm executives met in New York to outline how they would be incorporating new features and functions into their popular product. One of those features is wireless connectivity.

Michael Moskowitz, general manager of Palm Canada in Mississauga, Ont., says that by the end of the year Palm users will be offered wireless capabilities either built into upcoming Palm devices or through add-on wireless modems.

Currently, only those with the Palm VII can access the Internet wirelessly.

"But there are a lot of people out there that want to wirelessly enable their devices without having to use a larger device," Moskowitz continues.

Some of the new Palms will feature the ARM processor, and some will offer a Bluetooth chip, allowing the Palm to connect to the Web through a cellular phone.

Moskowitz adds that even with these features, Palm's greatest strength is that it's a popular and established platform for developers. Some 65,000 developers are writing applications for the Palm, giving the device a great deal of flexibility.

George Bulat, manager for PC research for IDC (Canada) Ltd. in Toronto says bringing developers over to the Pocket PC platform is going to be key if it is to take off with consumers and mobile business professionals. No one is going buy a device if there is a limited number of solutions for it.

Casio Cassiopeia E-105

"Within the first 60 days of the product shipping, we expect to have over 1,000 applications available for the Pocket PC," Microsoft's Katz says. "In addition, developing for the Pocket PC is something that is familiar to developers. To develop for the Pocket PC, you can develop for it in Visual Basic, Visual C++ and there are all the familiar APIs. So there is not a platform out there that has a larger developer base than the Pocket PC."

Some analysts say the Pocket PC has the greatest chance of succeeding in vertical markets, where users need devices that are made to perform specific tasks and where a notebook PC is still too bulky to be of use.

Steve Menzoff, product manager for the Pocket PC at Symbol Technologies in Holtsville, N.Y., says his company's Symbol PPT 2700 line of products is aimed at bringing the Pocket PC platform to such vertical markets, including the military, law enforcement, hotels, and the medical community.

The PPT 2700 is a ruggedized device that comes with a bar code scanner and wireless LAN connectivity. It is sealed from the elements and can withstand drops from as high as 1.2 m.

Recently, Symbol was awarded a contract with the U.S. military to use the PPT 2700 for automatic identification of military personal and visitors coming and going from military bases. This same technology can be used by hotels to check guests in and out. ❑

Darwin 1.0 source code released online

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Users can download iMovie at http://www.apple.com/imovie, or order it on CD-ROM (for US$19.99) by calling 800-293-6617.

Apple posts another profitable quarter

Also in Apple news, the Cupertino, Calif.-based company announced a net profit of US$233 million for the second quarter ending April 1 of fiscal 2000, up from $135 million for the same quarter in 1999. As well, revenues for the quarter were US$1.94 billion, up 27 percent from the same quarter in the previous year. According to an Apple press release, international sales accounted for 51 percent of the quarter's revenues.

"We are thrilled with the quarter—especially the strong demand for our PowerMac G4s and new PowerBooks," said Apple chief executive officer, Steve Jobs.

—*TCP staff*

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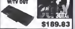

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Palm versus Pocket PC

Continued from page 41

On the other hand, I really appreciate the power of the applications I've tried, and the promise of the hundreds of others that are on the way. I've found myself in several situations during the past month when I had a Palm with me, but I really wanted a Pocket PC.

At the Pocket PC Workshop held in Seattle at the beginning of March, I saw several new applications demonstrated that go way beyond anything available or even feasible on the Palm. There are limits to what can be accomplished with the current version of the Palm OS, and Palm isn't talking about what, when or even whether it will do anything to change the situation.

For the foreseeable future, the Pocket PC will continue to be much more powerful than the Palm. It will be a better email and Internet client via Ethernet or dialup link, is more compatible with applications on the desktop and is a better platform for exploiting advances in hardware.

Anyone needing more power than the Palm, and who is comfortable with the Windows interface, should strongly consider Pocket PC. Palm won't have anything as powerful and versatile for at least a year, if ever. It may very well be the case that the two platforms go their separate ways and pursue distinct market niches.

I recently noticed an unexpected difference between the two systems. I have made it a ritual to check all of my computers and other devices on the Sunday morning in April after the change to Daylight Savings Time.

Computers make the time change unaided, as do some cell phones, which surprised me. This year, my two Pocket PC devices knew the correct time but not my Palm. It may be an unfair observation, but I think the Palm has had to jettison a lot in order to become lean and efficient.

Of the two devices I've been using to run the Pocket PC OS, one has a monochrome display, the other has colour, but not active matrix. The Pocket PC platform, because of its greater complexity requires colour even more than the Palm OS, as well as more RAM. My recent experience has convinced me that a Pocket PC with an active-matrix screen and 32 MB of memory is the way to go.

Though several manufacturers made devices for Pocket PC's predecessor Windows CE, only Casio, Compaq and Hewlett-Packard are producing Pocket PC devices for consumers.

I was surprised to learn that HP's new lineup will consist of passive matrix screens exclusively. Company officials say most of their customers won't be using Pocket PCs outdoors. For indoor use, a passive screen is fine, and HP customers have indicated they didn't want to trade battery life for active matrix screens. I appreciate the benefits of greater battery life as much as anyone, but I would trade it for the superior display offered by active-matrix technology ❑

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	Celeron 533	689	Pentium III 600	*1,358	Pentium III 650	*1,766	Pentium III 800	*3,228

*All Prices are already 3% discounted for cash, Money Order and Certified Cheque (pre-approve only), or Direct payment (Interac). VISA, Master Card or Government P.O. are on regular prices (Regular price = Cash discounted price + 3%)
Government, educational institutions & corporate P.O. are welcome. shipping cost is extra. Prices are subject to change without notice. See our up-to-date prices at: www.throne.com

DRIVES & CONTROLLERS

Int IDE Hard Drive Removable Kit	$ 30
Int IDE HD ATA/66 Removable Kit	$ 39
IDE 5400 RPM	
Maxtor 8.7 GB 90871U2	$ 149
Maxtor 15 GB 91531U3	$ 179
Maxtor 20.4 GB 92041U4	$ 202
Maxtor 30 GB 93073U6	$ 269
Maxtor 40 GB 94098U8	$ 382
Maxtor 61.4 GB 96147U8	$ 509
WD 8.4 GB 84AA	$ 149
WD 10.2 GB 102AA	$ 159
WD 13.6 GB 136AA	$ 179
WD 20.5 GB 205AA	$ 202
WD 30 GB 307AA	$ 289
IDE 7200 RPM	
Maxtor 15 GB	$ 212
Maxtor 30 GB	$ 309
Maxtor 40 GB	$ 389
Quantum 15 GB	$ 227
Quantum 30 GB	$ 289
WD 15.3 GB	$ 217
WD 20.5 GB	$ 259
WD 27.3 GB	$ 309
SCSI	
IBM 9.1G 22L1013 U2W 7200rpm 2M	$ 329
IBM 9.1G 27N1226 U160 10020rpm 2M	$ 497
IBM 18.2G 07N3210 U160 10020rpm 2M	$ 749
IBM 36G 07N3200 U160 7200rpm 2M	$1239
Seagate ST-39175LW U2W 7200rpm 9.1G	$ 395
Seagate ST-39204LW U160 10krpm 9.1G	$ 512
Seagate ST-318404LW U160 10krpm 18G	$ 757
Seagate ST 136475LW U2W 7200rpm 36G	$1140
Seagate ST 136403LWV U160 10krpm 36.4G	$1319
Seagate ST 150176LW U2W 7200rpm 50G	$1325
Seagate ST 173404LWV U160 10krpm 73G	$2249
IOmega 100 / 250M ZIP disk	$13 / 30
IOmega Int IDE 250M ZIP retail	$ 153
LS-120 120M Disk	$ 13
LS-120 3.5" 120M retail	$ 85
Panasonic 1.44M floppy retail	$ 18
Seagate Int 8G IDE tape drive w/ tape	$ 209
Seagate Int 8G SCSI tape retail	$ 339
Seagate Int 20G IDE tape retail	$ 309
Seagate Int 20G SCSI tape retail	$ 456
Tape 8G	$ 43
Tape 20G	$ 39
Adaptec 2930 kit	$ 75
Adaptec 2930U kit	$ 129
Adaptec 29160 Ultra 160 kit (retail)	$ 428
Adaptec 39160 Ultra 160 kit (retail)	$ 809
Adaptec Raid AAA-131U2 kit (retail)	$ 939
LAVA ISA printer retail	$ 28
LAVA PCI printer retail	$ 56
Promise PCI Ultra ATA/66 controller	$ 89

CASES with Power Supply

Mid-Tower 8 bays 230W	$ 45
ATX Mid Tower 5 bays 250W	$ 59
ATX AOpen Mini Tower 250W	$ 99
ATX AOpen Full Tower 10 bays 300W	$149
ATX Intel Columbus II Server Case 300W	$407
ATX Intel Astor II Server Case 300W	$726
Power Supply 250W / 300W	28 / 35
ATX Power Supply 250W / 300W	33 / 50

CPU CHIPS

(Please call for the current price, or refer to our WEB site. All retail box include Fan & 3 yr warranty)

AMD Processor		
K6 2 / 500	OEM	$ 99
K7 600 / 650	retail	$310 / 366
K7 700 / 750	retail	$398 / 456
K7 800 / 850	retail	$566 / 709
Intel Processor		
Pentium 233 MMX	bulk	$ 99
Celeron 466 128K	retail	$ 156
Celeron 500 128K	retail	$ 179
Celeron 533 128K	retail	$ 189
Pentium III 550E PC-FSB 100	retail	$ 349
Pentium III 600E PC-FSB 100	retail	$ 360
Pentium III 600EB PC-FSB 133	retail	$ 373
Pentium III 650E PC-FSB 100	retail	$ 456
Pentium III 650E 100	retail	$ 485
Pentium III 667EB PC-FSB 133	retail	$ 495
Pentium III 700E PC-FSB 100	retail	$ 609
Pentium III 733EB PC-FSB 133	retail	$ 698
Pentium III 750E PC-FSB 100	retail	$ 778
Pentium III 800E PC-FSB 100	retail	$ 888
Pentium III 850E 100	retail	$ [illegible]
Pentium III 866EB 133	retail	$ [illegible]
Cooling Fan for AMD and Pentium		$ 8.8
Cooling Fan for Celeron & Pentium II		$ 18

MOTHERBOARDS

Abit BE6-2	$ 194
ASUS P5A-B AT	$ 118
ASUS P3V4X VIA	$ 67
ASUS K7V with sound	$ 309
ASUS P3C-2000	$ 223
ASUS CU 2000	$ 230
retail CA810EA / CA810EAL	$ [illegible] / 099
retail CC820NA / CC820	$ [illegible] / 099
retail L440GX Server Board	$ 789
retail C440GX Server Board	$1089
Microstar 6309 with sound	$ 153
Microstar 6191 K7	$ 199
PC Partner VIA w/ sound (Socket 7) AT	$ 104
PC Partner 440ZX with sound AT	$ 114
PGA 370 Pins to Slot 1 Convertor	$ 58

INPUT DEVICES

AOpen 104 keys Keyboard	PS2	13
AOpen Wheel Mouse	PS2	17
Keytronic 104 keys Keyboard	AT/PS2	23
Logitech mouse	Serial / PS2	15
Logitech USB Wheel Mouse		39
Logitech Wingman Joystick		39
Microsoft Internet Keyboard		39
Microsoft Internet Keyboard Pro	USB	59
Microsoft IntelliMouse Exp Optical Mouse		$ 89

CD & DVD DRIVES

NEC Int SCSI 40X CD-Drive	$ 36
Panasonic Int IDE 44X CD-Drive	$ 56
Creative Int IDE 52X CD-Drive	$ 99
Creative Int IDE DVD 8X Encore Kit	$ 228
Panasonic Int IDE DVD 8X Drive	$ 187
Pioneer Int IDE DVD 10X Slot Drive	$ 229

CD WRITERS

Adaptec EZ-CD creator software (bulk)	$ 19
Creative IDE 8X4X32 Rewriter	$ [illegible]
HP Int IDE 8250i Rewriter Kit	$ 274
HP Int IDE 9310i Rewriter Kit	$ 379
HP Int SCSI 9210i Rewriter Kit	$ [illegible]
HP 9210e Ext USB Rewriter Kit	$ [illegible]
HP 9210e Ext SCSI Rewriter Kit	$ 525
Panasonic Int IDE 8x4x32 Rewriter	$ 379
Yamaha Int IDE 8424 Bare Drive	$ 350
Yamaha Int SCSI 8424 Bare Drive	$ 386
Yamaha Int CRW8424 EVK Value Kit	$ 429
Yamaha Ext 8424SX Full Kit	$ 420
Blank CD-disc BASF	$ 1.6
Blank CD-disc Kodak	$ 1.8

SOUND CARDS

[illegible] 24 bit Digital Audio	$ 170
Creative Labs Ensoniq PCI	$ 30
Soundblaster Live Value 256 (bulk)	$ 59
Soundblaster Live! X-Gamer (retail)	$ 119
Soundblaster Live! MP3+ (retail)	$ 119
Soundblaster Live Platinum (retail)	$ 257
Yamaha sound retail PCI	$ 20

SPEAKERS & MICs

Altec Lansing ACS21 5W	$ 28
Altec Lansing ACS33 3 pcs	$ 59
Altec Lansing ACS45.2 Subwoofer	$ 92
Altec Lansing ACS54 5 pcs	$ 99
Altec Lansing ACS48 Subwoofer	$ 110
Altec Lansing ADA880 DOLBY Digital	$ [illegible]
AOpen Speakers 120W	$ 18
Creative 4 point FPS2000 digital	$ 190
Creative Desktop Theater DTT2500 Digital	$ [illegible]
DOWA 120W Speakers	$ 24

SCANNERS

AGFA Snapscan 1212P	Parallel	$ 122
AGFA Snapscan 1212U (white)	USB	$ 122
AGFA Snapscan 1236S	SCSI	$ 228
Creative Webcam Go	USB	$ 199
HP ScanJet 3300C	USB	$ 149
HP ScanJet 6300C	USB/Parallel	$ [illegible]
HP ScanJet 6300C	USB/SCSI	$ 515
HP ScanJet 6350C	USB/SCSI	$ 632
Logitech QuickCam Xpress	USB	$ 90

INKJET PRINTERS

Canon BJC-1000 / BJC-2000*	$ 78 / 125
Epson Stylus 660* / 760*	$100 / 220
Epson Stylus 900*	$ 479
Epson Stylus 1520	$ [illegible]
HP DJ 840C	$ 229
HP DJ 930C	$ 299
HP DJ 970C USB	$ 569
HP Officejet 725	$ 475
HP Officejet T65	$ 744
Lexmark Z11	$ 90
Lexmark Z31	$ 175
Lexmark Z51	$ 249
IEEE Bi-direction printer cable 6 ft	$ 15

* *Additional mail-in rebate, ask for details*

LASER/LED PRINTERS

HP 1100	8 ppm	2M with /retail	$ [illegible]
HP 2100	10 ppm	4M	$ [illegible]
HP 3150	15 ppm	8M	$ 856
HP 4050	17 ppm	8M	$1109
HP 4050N	17 ppm	8M	$2061
HP 4500	4 ppm	32M Color	$3640
HP 8100N	32 ppm	24M	$4289
HP 8100DN	32 ppm	8M	$4820
HP 2500	8 ppm	32M Color	$ [illegible]
Okidata 4w	5 ppm		$ 315
Okidata 10ex	10 ppm	2M	$ [illegible]
QMS Magicolor 2 Desklaser		Color	$1969
QMS Magicolor 330 CX		Color	$8220
QMS 2060EX Print System			CALL

PRINTER ACCESSORIES

4 / 8 Meg HP 4+/4V/5P/6P	$ 59 / 78
4 / 8 Meg HP 4000/5000/8000	$ 59 / 83
8 Meg HP 5L/6L	$ 115
16 Meg HP 4+/5P/6P	$ 190
16M SDRAM HP 4000/5000/8000	$ 120

USB ACCESSORIES

ASUS TX97 USB Port	$ 22
Belkin USB PCI Adapter	$ 59
DLink USB Parallel Adapter	$ 53
DLink USB to Serial Converter	$ 77
USB A-A / A-B 6 ft cable	$ 15

MEMORY

(Please call for the current price, or refer to our WEB site)

SDRAM 32M 168pins 100MHz	$ 59
SDRAM 64M 168pins 100MHz	$ 90
SDRAM 64M 168pins 133MHz	$ 94
SDRAM 128M 168pins 100MHz	$ 177
SDRAM 128M 168pins 133MHz	$ 183
SDRAM 256M 168pins 100MHz	$ [illegible]
SDRAM 256M 168pins 133MHz	$ [illegible]

VIDEO CARDS

PCI		
3DFX Voodoo3 2000	16M	retail 131
ATI 3D Charger EDO	4M	$ 49
ATI Xpert@Play	8M	$ 59
ATI TV Wonder		retail 159
ATI All-in-Wonder 128	32M	retail 325
AGP		
3DFX Voodoo3 2000	16M	$ 109
3DFX Voodoo3 3000	16M	$ 159
3DFX Voodoo5 5500	64M	retail 441
ASUS V3800 Magic	32M	$ 149
ASUS V6600 Deluxe	32M	$ 339
ASUS V6800 Deluxe	32M	$ 430
ASUS V6800 PRO64	64M	$ 479
ATI 3D Charger EDO	4M	$ 47
ATI Xpert98	8M	$ 55
ATI Xpert@Play98	8M	$ 69
ATI Xpert 128	16M	retail 129
ATI All-in-Wonder 128	16M	retail 248
ATI Xpert 2000	32M	$ 115
ATI Rage Fury PRO	32M	retail 220
ATI All-in-Wonder 128	32M	retail 325
ATI Rage Fury Maxx	64M	retail 330
Diamond Viper II Z2000	32M	retail 244
Matrox G400 MAX dual ...	32M	retail [illegible]

MONITORS

Image 15HX Digital	15"	1280	.28	189
NEC FE700	17"	1280	.25	389
NEC FE950	19"	1792	.25	675
NEC FP1350	22"	1920	.27	$1455
Optiquest Q51	15"	1024	.28	$ 219
Optiquest Q95	19"	1600	.26	$ 460
Samsung 750 S	17"	1280	.27	$ 279
Samsung 950 P	19"	1600	.26	$ 515
Samsung 900 HP	19"	1600	.25	$ 690
Viewsonic E771	17"	1280	.27	$ 311
Viewsonic E773	17"	1280	.25	$ 385
Viewsonic G773	17"	1280	.26	$ 379
Viewsonic EF70	17"	1280	.25	$ 389
Viewsonic PF775	17"	1600	.25	$ [illegible]
Viewsonic PF790	19"	1600	.25	$ [illegible]
Viewsonic PS790	19"	1600	.25	$ [illegible]
Viewsonic G810	21"	1600	.25	$1110

FAX MODEMS

AOpen 56K Int V.90 w/voice PCI	retail	$ 59
AOpen 56K Int V.90 w/voice ISA	retail	$ 59
AOpen 56K Ext V.90 Serial		$ 89
USR 56K Int V.90 w/ voice PCI Win	bulk	$ 104
USR 56K Int V.90 PCI	retail	$ 144
USR 56K Ext V.90	retail	$ 175

NETWORKS (Hi-speed)

3Com 3C905 10/100 BT	$ 75
3Com 5 ports dual speed Hub 3C16800	$ 135
3Com 8 ports Hub 3C16700	$ 399
3Com 12 ports Switch 3C16464A	$ 799
3Com 24 ports Switch 3C16465A	$1060
DLink PCI 10/100 retail T retail	$ 59
Intel Pro/100+ PCI	$ 73
Intel Pro/100+ Server PCI	$ 80
Intel PCMCIA 10/100BT RealPort	$ 300
retail Internet Station w/ V.90 modem	$ 399
retail 100BT 8 ports Fast Hub	$ 229
Intel 10/100 Switch 8 ports	$ 699
Intel Routers	CALL
Pundata PCI 10/100	$ 27
Pundata 100BT 4 ports Hub	$ 79
Surecom 5 ports 10 BT Hub	$ 30
Surecom 8 ports 10 BT Hub	$ 53
10/100 BaseT (RJ45, 8 wire) Jack	$ 1.5
Ethernet Cable RG58/10/100 BT	0.49/ft
Ethernet 10/100 BT 100 w/Connector	$ 12
Ethernet 10/100 BT 250 w/Connector	$ 18
RJ45 key jack module for wall plate	$ 7.0
Wall plate (1/2/4/6 holes)	$ 3.2

Software (Microsoft 2000 versions could be purchased with systems)

Lotus Millennium Edition V9.0	bulk	$ 36
MS Office 2000 Small Business	OEM	$ 284
MS Office Pro 2000	OEM	$ 470
Windows 2000 Professional	OEM	$ 229
Windows 2000 Prof. Upgrade	retail	$ 299
Windows 2000 Server 5 users	retail	$1299

Uninterruptible Power Supply (UPS)

APC - American Power Conversion

Personal 7 Outlet w/Modem	$ 37
Network 8 Outlet	$ 72
Backup-UPS 350 / 500M	$128 / 189
Backup-UPS Pro 420 w/ Software	$ 309
Backup-UPS Pro 500U	$ 264
Backup-UPS Pro 650 w/ Software	$ 379
Backup-UPS Pro 1000	$ 529
Smart-UPS 700 Network w/ Software	$ [illegible]
Smart-UPS 1000 Network w/ Software	$ [illegible]
Smart-UPS 1400 Network w/ Software	$ 878

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Launch ushers in wave of Pocket PC announcements

On the heels of Microsoft's April launch of the Pocket PC, two B.C.-based companies, Infowave Software (http://www.infowave.com) and Sierra Wireless (http://www.sierrawireless.com), unveiled their wireless connectivity bundle for Compaq's iPAQ Pocket PC.

Sierra Wireless's AirCard 300 will add give Compaq Pocket PCs wireless connectivity.

The package combines Infowave's wireless enterprise software and Sierra's AirCard 300 wireless PC Card modem with Compaq's new Pocket PC-based handheld device. The companies say the result is an integrated solution that offers real-time, wireless access to Microsoft Exchange email, corporate intranets, the Internet, and Web applications from the iPAQ handheld.

Ted Clark, vice-president of Compaq's iAppliances, says, "This wireless solution... is fast, secure and keeps you constantly connected to your dynamic information. The iPAQ Pocket PC wireless solution is the ultimate device for the mobile worker."

According to a Gartner Group report quoted in an Infowave press release, more than 137 million business users worldwide will be involved in some form of remote work by 2003. And many will need a portable wireless solution, according to Infowave's chief operating officer, said Bijan Sanii.

"To compete in today's aggressive business environment, you need the same access to information and business tools when you're away from the office as you do in the office," says Sanii. "Wireless used to be a 'nice-to-have' but with this type of device and today's business climate, it's become a 'must-have'."

The iPAQ Pocket PC wireless bundle will be available through Compaq resellers, distributors, and their Web site (http://www.directplus.compaq.com).

—*Megan Johnston*

Expansion packs
NEW YORK—Also unveiled at the Pocket PC launch were a number of Pocket PC Expansion Packs. The add-on devices use industry standard CompactFlash (CF) cards and software to extend the capabilities of Pocket PC devices. Two Pocket Packs were available on launch day and dozens of additional CF applications for memory, networking, digital cameras and other uses are planned, according to Microsoft.

The Fun Pocket PC Expansion Pack will be available for free to customers who buy a Pocket PC this year. It includes more than 20 applications, including Pac-Man for Pocket PC, which looks, sounds and plays like the original arcade game.

The email Pocket PC Expansion Pack facilitates sending and receiving email while on the go, the company said.

—*Newsbytes*

Wireless Video available for Pocket PCs
SEATTLE—AtomFilms (http://www.atomfilms.com), a privately held entertainment company that provides short films and animation for digital media, announced the launch of what it called a "mobile initiative that will transform the way consumers enjoy and share entertainment."

AtomFilms says it is working with leading wireless and handheld computer manufacturers in an effort to provide digital entertainment on any platform, so consumers will be able to take an "entertainment break" anywhere by simply logging on to the AtomFilms Web site from a handheld Internet-enabled device.

According to AtomFilms, Pocket PC users can download and watch AtomFilms' animation and film shorts, without the need of cables, desktop computers, or DVDs.

AtomFilms says the technical advances of the Pocket PC—such as power, storage capacity and screen quality—will allow users to access AtomFilms' full motion, Web-based entertainment.

The films and animation will be viewable through the ActiveSky Media Player, which was developed by California-based ActiveSky. Animations and films can be downloaded through this media player on virtually any "large-screen" mobile device, such as the Pocket PC.

AtomFilms says its online channel optimizes content so users may download short films and animations that sync directly to their handheld device. Step-by-step information on how to download the films for a variety of Internet-enabled handheld devices are also part of AtomFilms' Web site, which also includes links to third-party resources for wireless devices, handheld devices, and media players.

AtomFilms says the ad-supported content is free to download. The company currently has about 1,000 titles in its film and animation library ranging in length from 30 seconds to 30 minutes. The content being made available for viewing on wireless devices, however, will run between one and four minutes in length.

—*Newsbytes*

Winepros
NB—This internet destination based in Australia is truly international, designed for wine enthusiasts and industry participants around the world. There are professional wine opinions and commentary, updates on the latest news and events, a comprehensive picture of wine in Australia, international wine trends and developments. With articles contributed by some of the finest wine experts from around the world, and a public forum, newsletter, a searchable online version of the *Oxford Companion to Wine*, and an ask the experts section, this site is sure to suit any wine-lover's palate.

http://www.winepros.com.au

The Proven Winner in Motherboards

M754LMR

The advanced features of All Aladdin TnT2 mainboard include:
- Socket 370 processors support the newest FC-PGA Pentium III processors as well as the Celeron PPGA
- All Celeron are automatically configured using firmware
- **Two DIMM slots for 3V SDRAM 168-pin memory modules**
  Support for 66 MHz 100 MHz and 133MHZ memory bus.
  Maximum installed memory can be 2 x 256 MB ~ 512 MB
- Three 32-bit PCI slots
- Onboard IDE channels Support for Bus mastering and UltraDMA 33/66 modes
- Power Supply and Power Management
- **Provides AT/ATX power connector**
  Support for Green PC standard, Suspend Switch, and Keyboard Power On/Off (needs Win98 key board) Support Wake on Modem Wake on LAN and Wake on Alarm
- **Built-in Graphics System**
  3D Hyper Pipelined Architecture Parallel Data Processing (PDP) with Precise Pixel Interpolation (PPI) Full 2 D H/W and Motion Video Acceleration, Up to 1600x1200 in 8-bit color at 85 Hz refresh H/W Motion Compression Assistance for S/W MPEG2 decode
- **Sound System - Meets PC98 audio specification**
  Full duplex playback and recording with built-in 16-bit CODEC, Downloadable Wave-table Synthesizer supports Direct Music
- **Onboard I/O Ports Floppy disk driver port slots 1Mb/s transfer rate.**
  One serial port with 16550-compatible fast UART One parallel port with support for ECP with EPP, Two USB ports, one PS/2 port (for mouse) and one infrared port(optional)
- **Hardware Monitoring**
  Built-in hardware monitoring for CPU temperature with fan speeds,Supports AMI's Data Client Manager (ADCM)
- **Onboard 10/100M LAN Adapter**
  LAN controller integrated Fast Ethernet MAC with PHY compliant with IEEE802.3u 100BASE-TX, 10BASE-T and ANSI X3T12 TP PMD standards. Compliant with ACPI 1.0 and the Network Device Class Power Management 1.0, High Performance provided by 100Mbps clock generator with data recovery circuit for 100 Mbps receiver
- **Fax/Modem DAA Module**
  56Kbps Fax/modem DAA Module, Supports V.90, V.34 V.32bis, V.32, V.22bis, V.22, Supports Auto Fallback with MNP 5 V.42bis data compression with 115200 compatible Virtual UART Requires 16 MB RAM with WIN 95/98/NT

M771LRM

Mainboard with brand new FlexATX form factor designed based on Intel 810E chipset.
- Support the FC-PGA Pentium III processors as well as Celeron PPGA processors.
- Highly integrated with several new technologies and special features such as Magic Setting IV Suspension Indicator LAN/Modem Power On Keyboard Power On and Hardware Monitoring capabilities.
- Chipset Intel 810E Bios Vendor Award L2 Cache PBSRAM N/A
- Memory DIMM 2 SIMM 0 Max. Memory 512MB.
- Chip Embedded in I810E IO Interface Memory Shared Memory
- **I/O Interface**
  Supports Plug and Play function, PS/2 keyboard with PS/2 mouse connectors, Dual USB Ports with LAN connector, One EPP/ECP mode parallel port, One 16550 high-speed serial I/O ports, VGA Connector, Audio Ports (Game/MIDI port, Line-in Line-out and Mic-in), Dual PCI IDE interfaces - support four IDE devices (PIO mode 4, DMA Mode 2, Ultra DMA 33/66) Supports 360K-2.88M Byte, 3 Mode FDDs or LS120, -ATX Power Supply Connector, Ports, headers with others
- SPDIF in/Out header for digital audio interface
- IrDA Cable header COM Port header,Two CD-In headers
- Green, HDD, power indicator LED headers
- LAN Card Wake Up/Internal Modem Ring Wake-Up [illegible]
- **Fax/Modem DAA Module**
  56Kbps Fax/modem DAA Module Supports V.90, V.34 V.32bis, V.32, V.22bis, V.22, Supports Auto Fallback with MNP 5, V.42bis data compression with 115200 compatible Virtual UART Requires 16 MB RAM and WIN 95/98/NT
- LAN Chip PCNet DM9102
- Slots ISA 0 PCI 2 ISA/PCI Shared 0 TV Out/LCD Panel Link Riser

M766LRT

The key features of the Intel 810 mainboard include:
- **Socket-370 Processor Support**
  The PPGA Celeron provides Pentium-II performance with integrated level 1 and level 2 cache memory. PPGA Celerons run from 300 MHz through to 533 MHz. Supports a 66 MHz front side systems bus. All Celeron are automatically configured using firmware,
- **Two DIMM slots for 3VSDRAM 168-pin memory modules**
  Support for 66 MHz and 100 MHz memory bus, Maximum, Installed memory can be 2 x 256 MB ~ 512 MB
- Three 32-bit PCI slots
- Onboard IDE channels Support for Bus mastering and UltraDMA 33 modes
- Power Supply and Power Management
- Provides AT/ATX power connector Support for Green PC standard, Suspend Switch, with Keyboard Power On/Off (needs Win98 keyboard)- Support Wake on Modem, Wake on LAN and Wake on Alarm
- **Built-in Graphics System**
  3D Hyper Pipelined Architecture: Parallel Data Processing (PDP) with Precise Pixel Interpolation (PPI) Full 2 D H/W with Motion Video Acceleration, Up to 1600x1200 in 8-bit color at 85 Hz refresh, H/W Motion Compression Assistance for S/W MPEG2 decode
- **Sound System - Meets PC98 audio specification**
  Full duplex playback with recording with built-in 16-bit CODEC, Downloadable Wave-table Synthesizer supports Direct Music
- **Onboard I/O Ports Floppy disk driver port slots 1Mb/s transfer rate.**
  One serial port with 16550-compatible fast UART One parallel port with support for ECP and EPP, Two USB ports, one PS/2 port (for mouse) with one infrared port(optional)
- **Hardware Monitoring**
  Built-in hardware monitoring for CPU temperature with fan speeds, Supports AMI's Data Client Manager (ADCM)
- **Built-in LAN Adapter**
  Onboard 10/100M LAN Adapter LAN controller integrates Fast Ethernet MAC with PHY compliant with IEEE802.3u 100BASE TX 10BASE T and ANSI X3T12 TP-PMD standards. Compliant with ACPI 1.0 and the Network Device Class Power Management 1.0, High Performance provided by 100Mbps clock generator and data recovery circuit for 100 Mbps receiver
- **Fax/Modem DAA Module**
  56Kbps Fax/modem DAA Modem, Supports V.90, V.34, V.32bis, V.32, V.22bis, V.22, Supports Auto Fallback with MNP 5 V.42bis data, compression with 115200 compatible Virtual UART Requires 16 MB RAM with WIN 95/98/NT

M865FC-ATX

VIA694X mainboard sets ATX form factor designed.
The board with advanced performance through the support for AGP 4X, 133MHz FSB, PC133 SDRAM with ATA-66. This board is designed for socket 370 processors including the newest FC-PGA Pentium III processors as well as the Celeron PPGA
- Slots 4 PCI slots, 1 ISA slot and an AGP slot,
- Chipset VIA VT82C694X 5 VT82C596B Bios Vendor Award L2 Cache PBSRAM
- Memory RIMM 0 DIMM 3 Max. Memory 1.5GB
- **Chip N/A IO Interface Memory N/A**
  Supports Plug and Play function, PS/2 keyboard with PS/2 mouse connectors, Dual USB Ports, One EPP/ECP mode parallel port, Two 16550 high-speed serial I/O port, Audio Ports (Line-in Line-out, Mic-in CD-in with game port) SPDIF In/Out header for digital audio interface, Dual PCI IDE interfaces - support four IDE devices (PIO mode 4 DMA Mode 2, Ultra DMA 33/66), Supports 360K 2.88M Byte, 3 Mode FDDs or LS120, ATX Power Supply Connector
- **Ports, headers with others**
  IrDA Cable header Green HDD, power indicator LED headers, CPU with Case Fan headers, LAN Card Wake Up/Internal Modem Ring Wake-Up headers

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intel inside pentium III
intel inside celeron processor

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Boards are sold without processors. Intel logos are strictly for visual representation of processors supported by the respective boards. Pricing is based on suggested retail pricing, with your local dealer may change prices without notice. All pricing is bareboard or bundled with processor only and does not include cooling devices.
HT-0500

Vacuum cleaner maker says it can improve battery recharging speed

By Stefan Dubowski

A Canadian company says it has devised a new way to charge batteries that means more power and a shorter wait.

On April 24 Toronto-based Fantom Technologies Inc. announced a "revolutionary" advance that could extend battery lifespans by as much as 40 percent and cut recharge time to mere minutes

And according to Fantom chief executive officer Allan Millman this new recharging system could spell longer lasting notebooks and personal digital assistants (PDAs), like Palm Pilots or new Pocket PC devices

"We're looking at a universal system here for all electrochemical and electromechanical systems," he said during a telephone interview

Fantom isn't looking to replace your AAs. Millman says the company plans to license the technology so current battery makers could build a better portable power source

The company started as a household appliance manufacturer—most notably of the Fantom Fury vacuum cleaner—and came up with the super battery in its quest to develop new technology, lighter products and better performance.

As it stands direct current (DC) technology doesn't let the user know how much juice is left in the battery Fantom's system is different.

"We have a way of determining exactly the remaining capacity of the battery," Millman said "Some modern batteries run at a constant voltage, but the capacity can be distorted by heat, for example.

"Heat is the enemy of batteries. The more you recharge, the more heat you create. And with more heat you create more damage"

Fantom's technology redirects lost power, putting it where it belongs—inside the battery The result. shorter charging times, more power and longer lasting rechargeables

Fantom made this "breakthrough" with help from Omachron Technologies Inc a group of scientists contracted by Fantom for research and development Together they came up with the "pulse train" method of pushing power

A pulse train according to Fantom is "neither alternating [AC] nor direct current [DC]" Instead a pulse train uses a circuit board and an electronic signal to get the juice into the battery more quickly.

Fantom says its power-deliver system will make its commercial debut this fall, when a new line of floor-cleaning appliances that incorporate the new technology debut.

—canadacomputes.com

E-commerce fights poor security image

Continued from page 40

dent of Fitmart.com in Markham, Ont. encountered when he was setting up his online fitness and health business Fitmart.com sells a variety of sport and nutritional supplements, vitamins and health foods.

He and his partner spent a lot of time researching online security solutions and trying to work with the banks to establish online credit card transactions He found that banks were reluctant to help online companies for a variety of reasons.

"Most institutions are hesitant," Pelner adds "The Internet is new to them. Another reason they are hesitant is the merchandise you are selling. Whether it is a porno site or whether it is online nutrition products, they weigh that against you because they think it is more of a risk."

Eventually, Pelner worked closely with a security certificate firm and Entrust to make his company's site secure, but he and his partner wish they had received more help from the banks. He says he would like to see more banks offer complete end-to-end security solutions and expertise to small, online businesses.

From the banks' point of view, part of the problem is that many online businesses are so new they have not built up the necessary credit and banking history needed to make the bank more comfortable in dealing with them.

"An Internet startup is a different story," adds Citibank's Thompson. "It is not that they have had credit, they just don't have any credit history that the bank can draw on. So the bank may ask for a certain amount of up-front money reserves in order to ensure the worthiness of the merchant to the customer and bank." ❑

ThinkPad A and T hit the streets

By David Tanaka

IBM (http://www.ibm.ca) has rolled three of its ThinkPad notebook computer lines into two and given them new names. The successful ThinkPad 600 series (IBM expects to sell more than two million units by the time the model is phased out) is being replaced with a slightly larger but lighter T series, while the workhorse 390 and 770 are being combined into a line called the A series.

Along with product simplification, IBM hopes to accomplish a few other goals with the line refresh, according to Greg Munster, director of marketing operations for IBM's Mobile Systems Group, which is based in Research Triangle Park, N.C. The A and T lines will share common features including power supply, memory, docking station and expansion peripherals.

Models in both lines will use a common UltraBay 2000 expansion bay along with a new device connector called the UltraPort. The UltraBay will allow users to share infrequently used items like DVD ROM or CD RW drives, which will be a money-saver for companies, says Munster. In fact, the only removable component that differs between the models is the primary battery.

To better support users, IBM has implemented Access ThinkPad, an electronic multimedia user manual that incorporates a mix of Web-based and locally stored information. One animation sequence, for example, shows users how to install extra memory. The new ThinkPad models will have a special ThinkPad button that invokes the Access ThinkPad main help screen at any time. Munster said the directory lists on the main screen and also be customized. For example, if a corporation wanted its online policy and procedures manuals to be available, it could create a hyperlink from the help screen to that datastore.

Product differentiators

The ThinkPad brand is now seven years old, and IBM says it sold its 10 millionth ThinkPad in the first quarter of 2000. The brand has been associated with some interesting design innovations (although they haven't always translated into customer acceptance). The A and T also incorporate a few innovations of their own.

The new UltraPort expansion port is located on the front (top) edge of the screen. Electrically, it is a USB port, although the mechanical connector is different than a standard USB port. IBM envisions that it and third-party developers, will create a range of accessories to fit the UltraPort. Munster showed an UltraPort video camera, and says a Bluetooth module is also under development. Other potential UltraPort devices include high quality speakers.

The A and T lines include the ThinkLight, which was first introduced on the i series. It is a small (and energy efficient, IBM assures us) light built into the top portion of the lid above the screen, that casts a pale light on the keyboard. It is intended to make it easier to take notes or do work in a darkened lecture hall or boardroom.

The outer case of the T—and some of the A models—is made of a titanium composite material that IBM says is stronger, lighter and less susceptible to flexing (a common cause of damage to components like the screen).

Model details

IBM says the ThinkPad T is the lightest notebook with a 14.1-inch screen. It weighs 2.25 kg (5 lb.) with the CD-ROM drive or 2.07 kg (4.6 lb.) if the UltraBay is empty. It is a two-spindle design, with the floppy and CD ROM drives hot-swappable from the UltraBay. The two models in the line are differentiated by processor speed (650 MHz or 700 MHz Pentium III), hard disk size (6 GB or 12 GB), and display size (13.3 inch or 14.1-inch TFT screen).

At 3.42 kg (7.6 lb.) the A series is the lightest notebook with a 15 inch screen, says IBM. Within the line, there are four models with processors ranging from a 500 MHz Celeron to a 700 MHz Pentium III, screen sizes ranging from 12.1 to 15 inches, and hard drives ranging from 6 GB to 18 GB.

Prices range from \$4,699 to \$6,199 for the T series and \$2,749 to \$6,099 for the A series.

Archive photos digitally reprinted

NB—Some 75 archive photographs, ranging from a line of model airplane enthusiasts in Central Park, to a foggy street in London, have been digitally restored from glass plates and plastic into laser negatives at Corbis. These photos, some dating back to 1888, are also on sale at this site. (The actual photos are on display at Metreon in San Francisco.) The 75 pictures here represent the best from among 17 million images in the Bettmann archive, its creators say.

http://store.corbis.com/bettmann/

Free Encarta

NB—Microsoft has made its Encarta dictionary free on the Net. The dictionary also offers audio pronunciations, and includes definitions, word origins and essays on usage from the CD-ROM version of Encarta World English Dictionary, which was released in August. Microsoft says the dictionary features thousands of global English references.

http://www.encarta.com/

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Gizmos: cool design, uneven execution

Suite of utilities, enhancements includes flashes of brilliance, but not elegance and robust utility expected from Play

By Jack and Nathan Surveyer

Play Inc. is one of those software companies that are interesting to watch. You have to stop and take note of what it is doing, because its software is never dull and sometimes quite excellent. Play is the company responsible for the Video Toaster, which prolonged the life of the Amiga computer and provided a price/performance breakthrough in PC-based video editing. Play also delivered the Snappy device and software, which together are still the standard for PC video capture. And a more recent Play product, Amorphium, has shaken the PC 3D video world with its innovations in that arena.

Gizmos Mega-Pak 98
Company: Play Inc
Tel: 888-888-PLAY http://www.play.com
Estimated price: $74.95 (based on US$49.95)

Play's Gizmos is a bundle of utilities wrapped in some attractive user interfaces. When the review copy arrived, everybody had to take a look at the goodies it contained.

A note on the ratings: a double plus (++) was awarded to features or implementations we felt were excellent; a single-plus (+) for those we deemed good; a tilde (~) represented a neutral rating; a single minus sign ( ) indicates feature or implementation was poor; and a double-minus ( ) was given to what we felt were very poor features or implementations.

We were initially a bit taken aback by the lack of attention to detail that normally marks Play software. This is indicated by poor ratings on the first two aspects we looked at—installation and overall performance, and basic user interface. Nonetheless we pressed on and fortunately clicked on some good modules.

Installation and overall performance (-)
Gizmos Mega-Pak 98 made Windows 95 (OSR2) slightly unstable (while writing this review it made Word 97 lock up or run so slowly that it became impossible to continue and forced a reboot).

- Installed on a 233 MHz Pentium MMX PC with 128 MB of RAM and a 2 GB hard drive.
- Did not install the optional 250 MB of files (basic install took 300-plus MB).
- Installation instructions refer to [ADVANCED] button, which we could not find.
- Must read user manual to determine how to operate most of the Gizmos
- Online Help pages don't have any links to the various Gizmos, only explanations and images
- No screen tips (hint pop-ups) for the bewildering array of buttons/icons on the Gizmos.

In addition, the overall Gizmos Launch Pad was a bit over designed.

Launch Pad interface (-)

- Ha[illegible] for the wide variety of butt[illegible] which made the whole experience very frustrating.
- Steep learning curve for this device.
- Nice graphics

Continued on page 52

IntelliMouse Optical a boon for lefties

By Issie Rabinovitch

Finally, a mouse for sinister people (also known as port siders, lefties, and so on). Microsoft has followed up on the success of its IntelliMouse Explorer by producing a mouse based on the same optical technology but with a shape that doesn't handicap lefties.

Microsoft IntelliMouse Optical
From: Microsoft
http://www.microsoft.com
Minimum system requirements: Windows 95, PS/2 or USB port, CD-ROM drive
Estimated street price: $85

It's an ambidextrous mouse whose symmetric shape is a far cry from the radically arced ergonomic designs of recent years produced by Microsoft and Logitech—and copied by almost everyone else. Also, some ergonomic models, including the IntelliMouse Explorer, were unsuitable for people with smaller than average hands. But lefties and small handed computer users alike will find much to like in this mouse. It is sure to be a major step up from the mouse they currently use.

The IntelliEye optical tracking technology was introduced almost a year ago and has really caught on. It replaces the mechanical mouse ball with an optical sensor and onboard digital signal processor that tracks movement on most surfaces without requiring a mouse pad. The only surfaces that need to be avoided are glass and mirrors (although some mouse pads also seem to confuse the optical technology). I found performance was excellent on any hard, flat surface. The absence of mechanical moving parts means the optical mouse doesn't need regular cleaning to maintain its precise tracking and should last longer than a conventional mouse.

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DupliDisk creates mirrored IDE array

Arco offers elegant basic data security at attractive price

By Jacques and Nathan Surveyer

When we first heard about DupliDisk we thought it was disk copy software, like PowerQuest's DriveImage or Symantec's Ghost. But we were pleasantly surprised. DupliDisk is a clever and simple system for mirroring IDE disks—a task that is normally the domain of much more expensive (and sometimes more complex to install and operate) SCSI disk drives.

DupliDisk
From: Arco Computer Products
Tel: 800 458 1666 954-925-2688
http://www.arcoide.com
Street price: $330
Overview: PCI card connects motherboard and up to four disks (two pairs) for very effective disk mirroring
Pros: Cost is a fraction of the price of SCSI-based systems for setting up a redundant mirror disk
Cons: No automatic failover provision
Overall rating: 4 ½ out of 5

DupliDisk is a PCI card that is connected between your motherboard ribbon cable and your hard drives. When installed and configured, it proceeds to write everything to a second disk for disk mirroring and back up purposes.

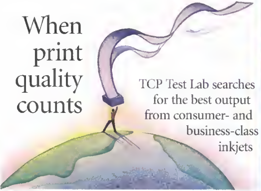
A number of our clients are starting to operate on the Internet and, thus, want to make sure their Web sites and services are available 24 hours a day, seven days a week—which is the norm online. Having an effective way to backup their PCI-based systems has been a growing concern. Enter DupliDisk as an alternative to the disruption and cost of replacing IDE disk drives with more expensive SCSI drives. And with hard disk prices plunging faster than an out-of-favour Internet stock, using DupliDisk as a backup system has some real attractions (with some caveats).

Setup easy
DupliDisk is easy to setup. Things did go awry when we first attached the primary drive (we'd have picked a different naming convention for the drive ports on the DupliDisk controller unit), but DupliDisk worked just fine after the connectors were

Continued on page 58

When print quality counts

TCP Test Lab searches for the best output from consumer- and business-class inkjets



By Sean Carruthers

Five years ago, the idea of using "inkjet" and "high-quality" in the same sentence would have been funny. A device that shot out big splotchy patches of ink to roughly approximate text just wasn't something most people had a use for, let alone something people would pay good money for.

What a difference half a decade makes! That same basic technology has been refined to the point where text is even finer than the laser printed text it was originally trying to emulate. The addition of colour ink to the technology, originally for basic graphics, now allows even the lowest-priced models to print photographic images. And the more you're willing to pay, the better the quality of the photographic reproduction.

How does it work?

Although there are slight variations from manufacturer to manufacturer, the basic idea is the same. An ink tank is coupled with a printhead that causes ink to shoot at the page in clusters of dots to form text or images.

The most common method is known as drop-on-demand thermal inkjet (also known as "bubble jet" in Canon printers). Inside the printhead, ink flows into a series of tiny reservoirs. Upon receiving a signal from the PC, a heat pulse is sent to that tiny compartment, which causes the ink to violently eject outward through a fine nozzle towards the page.

This is done many times each second and on many successive passes of the printhead across the page. When the process is complete, the tiny dots are grouped together by your eye to form seemingly seamless text or photography. Although Epson's "micro piezo" technology is similar in many ways, it uses electrical pulses and special ink to achieve the same effect.

Pick your paper properly

When the ink hits the paper, a few things can happen. On standard bond paper, the ink will hit the page and soak in, causing it to spread out a bit. This can cause text to appear fuzzy and images to lose much of their fine detail. Special grades of paper designed specifically for inkjet printers are available to combat this bleeding. The papers are similar in weight to standard bond, but have a special coating that allows ink to soak in only so far, keeping most of the ink on the surface and preventing spreading.

For this reason, we recommend you spend a bit extra and purchase inkjet paper, especially if the pages are to be used for professional purposes—for a report or resume, for example. Although the smaller size of ink droplets on newer inkjet printers allows you to get excellent quality even on lower grades of paper, the results are invariably better on higher grades.

Similarly, because each manufacturer tweaks inkjet performance to a certain type of paper, the highest quality of output is almost always obtained by using that printer's recommended brand and type of paper.

Yes, but at what cost?

If we told you that ink was cheap, we'd be lying. It's a not-so-well kept secret of inkjet printing that photo printing goes through cartridges like crazy and that replacing cartridges can be quite expensive. In fact, it's one of the biggest complaints we hear every time we do an inkjet printer Lab Test report.

When you get a machine capable of amazing resolution, there's a temptation to use that capability for absolutely everything—photos, graphics and plain old text. Anyone who's done this knows the cartridges will run out alarmingly quickly, so we'd like to offer a bit of advice ahead of the game:

- Drop the resolution when printing text. Most text looks perfectly fine at a 600 dots per inch (dpi), and even the draft mode on many inkjets is perfectly presentable for many applications.
- Resist the temptation to upscale every photograph to full letter size. Many will just look fuzzy anyway when printed out at that size and you'll just end up using far more ink.
- Print selectively. One of the main advantages of digital photography is that you don't have to develop every image. By printing only what you need, you'll save time, ink and money.
- If you're a first time buyer, immediately set aside enough money to cover the cost of replacement cartridges, or just buy extras at the time of purchase—it will give you a bit of time to experiment with the capabilities of the printer.
- The cost of inkjet cartridges for low-end models is often almost the same as for higher end models, so it's usually a better value to buy a model that has all the capabilities you need up front.

That said, it's OK if you wince every time you buy a new set of cartridges: it can be a fairly expensive trip to the store. In general, expect the cost of cartridges to outstrip the cost of the hardware over the lifetime of the printer.

Some printers are designed with individual ink cartridges for each colour. Instead of having to replace an entire three colour cartridge when just one colour is used up, this design allows you to replace individual cartridges when required. This is less wasteful. However, this tends to be implemented only on higher end professional models such as Hewlett Packard's 2000 series and Epson's 3000 units.

Giving it the business

Professional models are everything you'd expect: high-quality, with faster output, and larger capacity paper trays. They are also physically larger and more expensive than inkjets designed for home use. Business inkjet printers come in models that range all the way from

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When print quality counts

Continued from page 61

small-business in those suited for a graphic design shop. Networking capabilities are available for many of these models, but many are also designed for use with a single PC.

In the world of business, inkjet printers are not designed to replace laser printers, but rather to supplement them. It's very important to note that businesses requiring high-volume text output will find inkjets to be both a time and money sinkhole. At present, laser printers still have a big advantage over inkjets in terms of cost per page, and output speed.

Where the inkjet does excel in a business environment is wherever full-colour output is not only nice, but necessary. This includes design shops, publishing houses, and other business that require full-size on site colour proofing.

Inkjet speed varies

One disappointment many people express with inkjet printers is that they never seem to live up to the speed expectations. Part of the blame for this lays squarely on the shoulders of the manufacturers, because of the way speed is rated. On laser printers, the quality of the print has very little impact on the output speed. With inkjets, on the other hand, the higher the quality the longer it takes to print out.

Unfortunately, inkjet speed is typically rated using draft mode prints, and minimal page coverage. Because of that, when someone prints out a photograph (or even a sheet of presentation mode text), the speed isn't anywhere near the rating on the box. Because inkjet printers spool from the host PC, an older PC can also cause the print to be slower.

When you print something on your inkjet printer, therefore, adjust your expectations to the type of print job. You're not going to get anywhere near the speed listed on the outside of the box when you do higher quality prints. During testing this month, we timed each printer with a photograph printed on a letter sized sheet at that printer's highest resolution on photo paper. Our PC was a 600 MHz Pentium III-based system with 128 MB of memory running Windows 98. Your speeds will vary, but this should give you a basic idea of the relative speeds.

Archival quality

One of the problems many people have with inkjet printing is the longevity of the printed images, especially when it comes to photographic prints. This continues to be a concern, even today, with expected life spans ranging from one to 10 years (depending on how you store the page). If you leave the print in direct sunlight it's an even shorter period.

Most inkjet manufacturers are constantly researching methods for making inkjet prints last longer, but only now is inkjet print longevity approaching what is taken for granted with traditional photographic prints. In the interim, save the original files—you can always print them again.

Epson announced lightfast papers and inks with its 870 series printers earlier this year. Prints on its special matte finish photo paper will last more than 20 years, according to independent estimates. Meanwhile, third-party ink and paper manufacturers have already developed ink and paper combinations that are addressing the need for fade-resistant prints.

A recognized authority on inkjet print longevity is Wilhelm Image Research Inc. Its Web site (http://www.wilhelm-research.com) posts results of its ongoing research on inkjet printers, inks and papers. If you are interested in this issue, this site is worth bookmarking.

What we tested

This month we tested two batches of printers. The first group we could classify as high end consumer printers, with a focus on photographic output. We looked primarily at photographic print quality in this group. The second group had a business-oriented focus, with wide-format capability and/or networkability. These printers were evaluated for networking capability and large-format prints where applicable.

Consumer inkjets

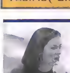
Canon BJC-8200 Photo Printer

Estimated street price: $399

http://www.bjc-8200.com

- Uses Canon's Bubble Jet technology

Continued on page 66



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it bounces around the screen

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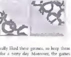
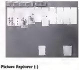
Games and Picture Puzzler (++)



Kids really liked these games, so keep them ready for a rainy day Moreover, the games were fun to play and not just for kids. One problem—as soon as we started a picture puzzle, it could be minutes or it could be hours before we finished.

- Beautiful graphics.
- Puzzle and card games easy to use, no need for manual
- Card games were a bit slow to load/deal cards 0



Picture Explorer (-)

Having just reviewed photo album programs, we have high standards for such software This category of software allows you to find, view and file images on your PC. Again, Play had some nice design touches for its album but the rough edges were showing

- Opens almost every image file type known to mankind

Continued on page 60

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IntelliMouse Optical a boon for lefties

Continued from page 50

The IntelliMouse Optical has the usual two buttons, a scrolling wheel and two additional buttons on the sides. The side buttons take you forward and back in your Web browser, but, like all of the buttons, can be customized to execute other common tasks. Customizing is so easy that you may find yourself doing it temporarily to save time on a particular project, then reverting to your standard settings.

Something I always select as part of my standard settings is Snap To, which can be found under Pointer Options. This automatically moves the mouse pointer to the default button in dialogues boxes, which can be a big time and motion saver once you get used to it.

The package includes the USB mouse, a USB to PS/2 adapter, a booklet and the IntelliPoint software on CD ROM. The booklet's skimpy instructions, however, weren't adequate for connecting the mouse to a USB port. One reason for this is the generic nature of the IntelliPoint software and booklet. Both are shipped unmodified for the various pointing devices that employ the IntelliEye optical technology. This is a source of possible confusion for the user. For example, when installing the IntelliPoint software, you have to pick your mouse out of a list of nine models.

Worse, the instructions for connecting to a USB port say to turn on your computer, plug into the USB port and answer the questions posed by the wizard. The instructions don't say when to connect and don't mention some of the dialogues you will encounter.

For a successful installation, connect the mouse to the USB port after you login to Windows, and not before. Windows will sense the mouse immediately and ask you where it should get the driver.

You will also have to navigate a dialogue box designed for mouse use with only your keyboard. Most users will need some assistance at this point. The driver you need is probably already on your system, so you should indicate the Windows directory as the place to look. If it isn't there, you may need your Windows installation CD-ROM. If you run into problems, consider connecting the mouse via a PS/2 port. This approach didn't cause any problems, and didn't require the surrender of any mouse performance.

Once I had passed this sticky stage, everything was fine. I installed the IntelliPoint software and customized my settings. The operation of the mouse is exemplary. The tracking is smooth and precise, the IntelliPoint software has many useful options, and the red glow in the dark is a bonus.

Unfortunately, although I'm left-handed, I'm more comfortable using this mouse with my right hand. That's a consequence of adapting, albeit unwillingly, to the right-handed orientation of the computer world. However, now that I have a state-of-the-art mouse I can use with my left hand without spraining any tendons, I'm considering a return to my sinister roots. ❑

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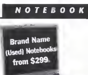
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DupliDisk creates mirrored IDE array

Continued from page 50

switched with no harm done. DupliDisk is certainly robust. You can use IDE, EIDE, and DMA 33 drives. Arco recommends matching drive types, and suggests the secondary drive at least match the primary in disk capacity.

DupliDisk supports a wide range of PC operating systems, including Windows 3.x, 9x, NT, OS/2, DOS, Unix, Linux and Netware among others.

You can attach up to two pairs of drives on one DupliDisk card. Given that 50 GB IDE drives cost about $400, setting up a 100 GB server with true disk mirroring can come in at less than $2,000. This is fantastic considering that just three years ago you would have had to add an extra zero to that cost to do the same thing.

After installing the card and connecting the primary and secondary drive(s), you need to run a setup program from a floppy which copies the primary disk to a secondary backup. Depending on the size and speed of the drive, and the speed of the bus and CPU, this can take between three and 10 minutes per gigabyte. The DupliDisk setup floppy comes with a bare bones version of Caldera's DR DOS 7.02. The only modification we made to this disk was to add a simple AUTOEXEC.bat file that automatically launched the ACP.exe program when the PC was booted from the floppy.

Our impressions

- The included manual guides you nicely through what to do, however IDE port labels could be more explicit.
- The ACP program runs without a hitch; however the interface could use some updating.
- Copying the data on a 2.1 GB Fujitsu drive to a 2 GB Maxtor drive was a breeze.
- The "mirrored" PC ran as fast as it did prior to mirroring (boot-up, saves, installs, etc.) Once set up the mirrored PC ran without a hitch.
- DupliDisk does not require an interrupt, an I/O/address or any other system resources. This means it is transparent, and therefore does not require any changes to your CMOS BIOS setup. Equally important it means there is no performance or speed penalty for using DupliDisk.

To simulate a drive failure Nathan manually disconnected the power to the primary hard drive, which caused a problem during bootup as the drive and the DupliDisk controller were not recognized. The alarm sounded on the DupliDisk, so Nathan manually rebooted the PC and the "mirrored" drive took over. Very smooth and as fast as a soft reboot.

Backup considerations

Our failure simulation, however, did raise some issues. The first concern is that DupliDisk does not have automatic failover, requiring the operating system to manage a soft reboot. The second issue is that after the reboot the restored operating system runs without mirroring as the disabled drive is out of the loop. DupliDisk does not support "hot" drive swapping or automatic background

Continued on page 60

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DupliDisk creates mirrored IDE array

Continued from page 58

copying to the new mirror drive, which high uptime servers from Sun, Hewlett Packard and IBM deliver. In effect, the PC system will have to be brought down to restore mirroring services.

This essentially means doing the setup again to copy the new primary drive to the new secondary backup—an operation that can take 30 minutes or several hours depending on the size of the drives.

So DupliDisk only delivers about one-half of round-the-clock, uninterrupted availability. For the most common disk outages (head crashes and bad sectors), DupliDisk will take over instantly with no drop in service. But to restore disk mirroring protection the system has to be taken down during a light usage period to set up a new secondary backup drive.

DupliDisk cannot replace all backup tapes or systems for another reason. In addition to backup they are also offering a simplified version control system. (Most backup systems keep a set of separate weekly, monthly and yearly tapes which would allow a user to go back every week for say four weeks, or every month for 12 months to search for earlier versions of a file or database table.) Unless operators of a system have four extra weekly disk drives, plus 12 monthly disk drives DupliDisk cannot match the crude (but often effective) version control capabilities of traditional backup systems.

However do not underestimate the value of DupliDisk. Truly, it has taken thousands of dollars out of disk mirroring costs and enables much more reliable operation of your PC based systems. In addition, the simplicity of installation and lack of performance penalty during operation make it very attractive. ❑

Jacques Surveyer is a software consultant and writer. He can be reached via his Web site http://www.inforamp.net/~jbsurv
Nathan Surveyer is a PC and Mac network specialist. He can be reached at nes_pcmac@kawartha.com

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Gizmos: cool design, uneven execution

Continued from page 54

- Doesn't allow you to move a file back up a directory tree.
- Can't tag and move a collection of images.

Themes screen saver (-)

This module was impressive but screwed up desktop and sound settings. Both this and the photo cataloguing tools were a bit disappointing because of the lack of drag-and-drop features and the inability to customize the setup as you can with other programs such as Ulead's Photo Explorer.

- Unable to reset to the user's original settings (background image and sounds) which Windows Plus! does easily.
- Unable to change desktop background between Themes.
- Themes do not extend to Inbox, My Briefcase and Network Neighbourhood icons, which Windows Plus! does cover.

Vault and Shredder (++)

These provide desktop security, including file encryption and deletion. Again we found another gem in the Gizmos in the security tools.

- Work as easily as Win/Zip and didn't require use of the manual to configure and run. ❑

Nathan Surveyer can be contacted at nes_pcmac@kawartha.com. Jacques at jbsurv@inforamp.net

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Surf like an Egyptian

NB—Orientation Egypt is a bilingual portal presented in English and Arabic. The site is the newest country product in the Orientation family. Arabic, the world's sixth most spoken language, is the 14th language offered by orientation.com. The site has adapted cutting edge technologies to bring the Arabic site to life, such as a search engine that has been optimized for Arabic. Additionally, users can search in Arabic or English and view the relevant records in Arabic.

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[illegible]										
Print method	Bubble jet	Micro-piezo	Thermal inkjet	Thermal inkjet	Thermal inkjet	Thermal inkjet	Micro-piezo	Micro-piezo	Thermal inkjet	Thermal inkjet
Maximum resolution (dpi)	1,200x1,200	1,440x720	2,400x1,200	2,400x1,200	1,200x1,200	2,400x1,200	1,440x720	1,440x720	2,400x1,200	600x600
Rated draft speed (color)(ppm)	3*	7	8.5	10	4	7	10	7	9.5	9
Rated draft speed (black)(ppm)	8*	9.5	11	12	8	15	12	7	11	11
Weight (kg)	5.9	5.8	5.7	6.8	3	4	NA	22.5	10	22
Dimensions WxDxH (cm)	46x33.3x20.1	46x28.9x17.5	44x37x18.6	44x43x18.7	46.5x25.1x18.3	49.5x20.6x37.2	NA	81x66.5x24	59.4x47.3x23.4	68.5x61x33.7
Rated noise level, max. (dBA)	37*	42	46	46	40	NA	NA	45	47	48
Input tray capacity (sheets)	100	100	100	150	100	100	100	100	150	150 + 250
[illegible]										
Windows drivers	Win95/98/NT	Win3x/9x/NT	Win3x/9x/NT/2000	Win3x/9x/NT/2000	Win9x	Win3x/9x/NT/2000	Win3x/9x/NT	Win3x/9x/NT	Win3x/9x/NT/2000	Win3x/9x/NT
Macintosh drivers	yes	yes	yes	yes	no	yes	yes	yes	yes	yes
Interface	parallel, USB	parallel, USB	parallel, USB	parallel, USB	parallel	parallel, USB	parallel, USB, Serial II, RJ-45	parallel, Serial II	parallel, USB	parallel, RJ-45, USB
Extras				duplexing unit	photo card slots					
[illegible]										
Letter 8.5x11	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Legal 8.5x14	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Tabloid 11x17	no	no	no	no	no	no	no	yes	yes	yes
A4 (8.25x11.69)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Envelopes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Transparencies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Glossy paper	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Index cards	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Labels	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Printer price	$400 street	$299 street	$449 SRP	$530 SRP	$329 SRP	$289 street	$700 street	$1,800 street	$600 SRP	$2,040 SRP
Color cartridge cost (SRP)	$20	$45	$43	$48	$60	$64	$40	$80 (each colour)	$48	$42 (each colour)
Black cartridge cost (SRP)	$20	$40	$40	$40	photo $47	$80	$32	$88	$40	$42
Other cartridge cost (SRP)	printhead $150 SRP				high-yield, black only	high-yield, black only		maintenance cart $540 SRP		
Warranty	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year	1 year
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When print quality counts

Continued from page 62

- Uses a single printhead and six individual ink reservoirs
- Both USB and parallel interfaces are standard
- 1,200x1,200 dpi resolution provides high-quality output
- Inking is heavier than some others, causing a bit of page curling on standard bond
- Speed is measured by how long it takes to print out a colour photo instead of pages per minute for black text, and is rated at between one and three pages per photo, depending on size

- Our test photographic image took 2.56 min
- Text output is high quality, but quite slow at times
- 100 sheet top loading input tray
- 37 decibel noise level rating makes this one of the quietest printers tested
- All pieces come pre-attached, cutting down on setup time
- Accepts optional Canon IS 52 Color Image Scanner Cartridge, which turns printer into a 600 dpi scanner
- Compatible with Windows 9x/NT and Mac OS 8.5 and later
- 1-year warranty

Although it looks like other models in Canon's inkjet lineup, the BJC-8200 is specifically designed for photographic output. Instead of the two cartridge design most printers use (black and colour), the BJC 8200 splits the colours into six separate ink tanks and a separate printhead for more efficient ink use and cartridge replacement. The printer prints at 1,200x1,200 dpi, for greater over all page coverage.

The trade off? Printing standard text is a bit slow—but is only an issue if you print out a lot of text. The high quality output and scanner cartridge option make this an attractive choice, and the ink setup makes it even more appealing.

Epson Stylus Color 860
Estimated street price: $230
http://www.epson.com/printer

- Uses micro piezo technology
- Both parallel and USB are standard interfaces.
- 1,440x720 dpi resolution delivers excellent photographic output
- Draft text speed is rated at up to 6.5 pages per minute (ppm) black.
- Our test photographic image took 2.40 min
- 100-sheet top-loading input tray
- A window on the top of the machine allows you to see the progress of your print job
- Cartridge changing is difficult, requiring a held three-second button push that is often confused with a cartridge cleaning order
- 42 decibel noise level means quiet printing
- Compatible with Windows 3x/9x/NT, Mac OS 8.1 and later
- Printer ships with rear paper support detached, and requires some minimal setup
- 1-year warranty

Many professional photographers prefer Epson products when they make the move to inkjet technology and it's easy to see why. The Stylus Color 860 follows in the footsteps of a few other high-quality inkjets, offering excellent photographic reproduction and crisp text. Epson has also long sported Mac-compatibility, and although the 860 drops the Serial 8 connection, the inclusion of a USB interface should keep users of USB-equipped Macs in the fold. One could argue that the 1,440x720 dpi resolution doesn't offer as much page coverage as a printer with 1,200x1,200 dpi output, but it's hard to notice any difference unless you're counting the dots with high power magnification. As usual, top notch.

Hewlett-Packard Deskjet 952C
Estimated street price: $443
http://www.hp.com

- Has both parallel and USB ports
- Uses PhotoREt III technology for excellent print quality, offering 600 dpi black and up to 2,400x1,200 dpi colour output (with photo paper, and with PhotoREt turned off)
- Switching into high-quality mode had a tendency to make the PC seize up, sometimes in the middle of a print
- Draft text speed is rated at up to 11 ppm
- Our test photographic image took 5:17. (Note: we used PhotoREt III instead of 2,400x1,200 dpi.)
- 100-sheet input tray with sliding design allows relatively easy access, even for smaller paper sizes
- Back of printer is removable to accommodate optional duplexing unit
- 48 decibel noise level is moderate
- Compatible with Windows 3x/9x/NT/2000 and Mac OS 8.1 or later
- Printer ships intact, with all pieces attached except cables
- 1-year warranty.

HP's 900 Deskjet printers offer excellent photographic reproduction in addition to fast text output. HP's newer printers also sport Mac compatibility via the USB port, which is a big plus. One tiny complaint about the higher quality mode, however: to get access to 2,400x1,200dpi printing, users have to go through a few steps, including turning PhotoREt III off, which is a counter intuitive procedure. It would have been nicer to just have a clearly labeled option on the first page of the print driver. That said, even the 600x600 dpi print quality that can be obtained with PhotoREt III turned on is outstanding, and easily rivals 1,200 dpi mode on other printers.

Hewlett-Packard Deskjet 970Cse
Estimated street price: $599
http://www.hp.ca

- Has both parallel and USB ports

Continued on page 73

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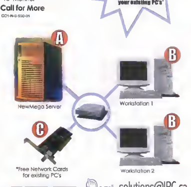

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When print quality counts

Continued from page 66

- Uses PhotoREt III technology for excellent print quality, offering 600 dpi black and up to 2,400x1,200 dpi colour (with photo paper, and with PhotoREt turned off)
- Switching to high quality mode can seize up the PC, sometimes in the middle of printing
- Draft text speed is rated at up to 12 ppm in black
- Our test photographic image took 5.35 min. (Note: we used PhotoREt III instead of 2,400x1,200 dpi.)
- 150-sheet input tray
- Duplexing module is included for automatic two-sided printing (specified from print dialogue box) and can be detached to keep printer more compact
- 46 decibel noise level is moderate
- Can be used with HP JetDirect print server for network printing
- Compatible with Windows 3x/9x/NT and Mac OS.
- Printer ships intact, with all pieces attached except cables
- 1 year warranty

The 970Cse was the first model in HP's 900 series Deskjet printer line that we had a chance to test. It holds up beautifully despite the same minor concerns we had about 2,400x1,200 dpi mode with the 952C. The photographic output is excellent, and presentation text is crisp and fast. The Mac compatibility (through USB) is also a nice touch.

What really sells this model, however, is the full automatic page-duplexing ability with the included duplex attachment. Combined with the high quality output, the duplexing feature makes the Deskjet 970Cse the ideal machine for producing detailed full colour brochures right on the desktop.

Lexmark Photo Jetprinter 5770
Suggested retail price $359
http://www.lexmark.com/canada

- Accepts both CompactFlash and SmartMedia in slots on printer, and users can control photo printing from a menu on the front of the machine, for PC-less printing
- Has parallel interface only
- 1,200x1,200 dpi resolution
- Draft text speed is rated at up to 8 ppm
- Our test photographic image took 7.12 min
- 100-sheet top-loading input tray
- Users can attach a Zip drive to the parallel port to upload and offload images from the photo cards, for storage even when no PC is attached
- Accu Feed technology virtually eliminates misfeeds and paper jams
- Users must attach a few pieces on the 5770, but setup is relatively easy
- Compatible with Windows 95/98
- Printer ships with one colour cartridge and one photo cartridge, but users can also replace the photo cartridge with a solid black cartridge ($50) for text printing. Cartridges are also available in higher yield versions (which are more expensive)
- 1 year warranty

Although a few other manufacturers have introduced inkjet printers that accept digital camera media directly (rather than having to access it through a PC), Lexmark was the first out of the gate with this model. Based on the older 5700 model, the 5770 offers excellent photographic output as well as crisp and speedy text printing.

We did have a few quibbles with this unit. First, the default colour is skewed a bit too heavily towards red, which means skin tones may be an issue if you don't adjust the colour ratios in the printer driver. Secondly, the LCD menu on the front of the printer forces the user to do quite a bit of scrolling and button pushing when printing directly from the printer.

However, those issues were more than offset by the benefits the 5770 offers: the ability to print digital camera images without the need for a PC, the ability to upload and offload images by using a Zip drive, and the high-quality output.

Lexmark Z52 Color Jetprinter
Estimated street price $299
http://www.lexmark.com/canada

- Has both parallel and USB ports
- Resolution of 2,400x1,200 dpi is the highest currently available, and can be used regardless of paper grade
- Draft text is rated at up to 15 ppm black.
- Our test photographic image took 8.13 min
- 100-sheet top-loading input tray folds into the printer when not in use to prevent dust from getting into the machine
- All pieces except the cables come attached
- Compatible with Windows 3x/9x/NT and Mac OS
- Accu Feed technology virtually eliminates misfeeds and paper jams
- Ships with one black and one colour cartridge which are both available in higher yield versions (which are more expensive)
- 1-year warranty.
- Note: Z52 will not be in stores until June

The Z series was a reinvention of Lexmark's consumer inkjet line, bringing technology from the higher end down to users at the budget end. The Z51 was at the highest end of that line... until now. Maintaining the same basic form factor as the Z51, the Z52 raises the resolution bar to 2,400x1,200 dpi.

Unlike the HP models that use this resolution, the Z52 can use it on any grade of paper and with a single driver selection. Speed-wise, the Z52 is capable of up to 15 ppm of draft quality black text. If that wasn't enough, it addresses a long-standing complaint about

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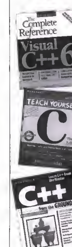

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When print quality counts

Continued from page 71

Lexmark's inkjet printers by introducing Mac compatibility (through USB). A winner, all around.

Business inkjets

Epson Stylus Color 900N

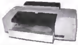
Estimated street price: $799

http://www.epson.com

- Uses micro piezo print technology
- Two cartridge design
- Interfaces include parallel, USB, Serial 8 and 10/100Base TX
- Networking includes Novell Netware, TCP/IP, Apple Ethernet and Windows/LAN server protocols
- 1,440x720 dpi resolution
- Draft text is rated at up to 12 ppm
- Our test photographic image took 2.21 min
- 100 sheet top loading input tray may be on the small side for a networked machine
- Compatible with Windows 3x/9x/NT and Mac OS 7.5.1 or later
- 1 year warranty

One thing that has been a great selling point of Epson printers is the wide variety of interfaces that come standard with these units. The 900N model has the N designation because of its onboard network card, but the printer also has parallel, USB and Serial 8 interfaces, for more versatility. The print quality is outstanding, as well, with excellent photographic reproduction and crisp high-speed black text. Network setup was relatively painless using DHCP and we had the printer up and running on the network within 10 minutes.

Two small complaints about the machine, however, were the relatively small capacity of the paper input tray (which could be problematic in a busy environment), and the fact that it doesn't accept tabloid size sheets. For a relatively quiet office, though, the machine may be just the ticket.



Epson Stylus Color 3000

Estimated street price: $1,899

http://www.epson.com

- Uses micro-piezo print technology
- Ships with four individual ink cartridges (cyan, magenta, yellow and black) for more efficient ink use and cartridge replacement
- Interfaces include parallel, serial 8, and an optional USB adapter
- Printer can be networked using an optional card (available for $549)
- 1,440x720 dpi resolution
- Draft text is rated at up to 7 ppm
- Our test photographic image took 5.19 min
- Accepts up to 13x19 in. paper with bleed (prints right to edge of page)
- 100 sheet adjustable input tray a bit small for more demanding office environments. The tray is on the flimsy side
- A roll of paper can be fed in from the rear of the machine for banner or continuous printing
- 46 decibel noise level is moderate
- Compatible with Windows 3x/9x/NT, Mac OS 7.x or later
- Includes PostScript Level 2 driver for Windows 9x and Mac
- 2 year warranty

At over 76 cm (30 in.) wide, the Epson Stylus Color 3000 isn't something you casually drop onto a desktop. It is a professional-level networked device with the output quality to match.

Its separate ink tanks are high-capacity and allow for more efficient use of ink (no need to throw an entire colour cartridge away just because one colour runs out). The input paper tray is one of the machine's biggest advantages and drawbacks. On the plus side, it accommodates a wide range of paper sizes—from index cards to 13x19 in. sheets—simply by sliding the adjustable tray in and out and moving the paper guides. On the downside, it has just the one tray, which only holds 100 sheets. In a busy office environment where more than one paper size is regularly used, it will mean a lot of adjusting and refilling. And although sheets can be fed manually through the rear of the printer, it can be a pain if that side of the printer is facing a wall.

That said, its output quality is outstanding and its ability to handle 13x19 in. sheets with full bleed makes this an excellent choice for a print production environment in which full colour proofing on the fly is required.

Note: Networking does not come standard on this model, but is added easily with a $549 network card. This bumps the price up into an arena that may not be as competitive as other printers that include network connectivity but, as always, prices will vary, and it may be worth shopping around.

As well, we would categorize this printer as a special purpose item. It's not really designed to be a workhorse inkjet for general office duty. Where it shines is in graphic arts and printmaking. Third party ink manufacturers are making archival inks for this model, which adds to its appeal in these fields.

Hewlett-Packard Deskjet 1220Cxi

Estimated street price: $699

http://www.hp.com

- Has both parallel and USB ports.
- Two-cartridge design (black and colour)
- Uses PhotoREt III technology, which offers 600 dpi black resolution and up to 2,400x1,200 dpi colour (with photo paper and PhotoREt turned on)
- Draft speed is rated at up to 11 ppm
- Our test photographic image took 5.25 min
- 150-sheet input tray
- Printer occasionally fed through more than one sheet at a time

Continued on page 89

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SOYO SY-6VCA

VIA 694X Chipset, ATA66 4xAGP
Slot 1 FSB 66/100/133/(155)MHz
Supports all P II P III and Coppermine CPUs
FSB from 66MHz to 155MHz in 32 steps
SOYO Jumperless design, SOYO Power-Up Feature
Superb Overclock Capability
SOYO AI-BIOS Intercepts CIH virus
AGP 5PCI AMR, (1ISA) 3DIMM ATX

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SOYO SY-BA+4

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Computing quickly on the move

TCP Lab checks out 450-plus MHz notebooks

By Dave Chappelle

The TCP Lab has been looking at high end notebooks from several manufacturers. When we asked for the loan of test machines, our minimum requirements were 450 MHz CPU, 128 MB RAM, 8 MB video RAM, an 8 GB hard drive, 13 inch or larger thin film transistor (TFT) active-matrix display, and three-spindle (hard drive, floppy drive, optical drive) or hot swappable CD ROM and floppy drives.

Reviewer's notes

RAM makes a difference

During our benchmark testing the relationship between system RAM and CPU speed became apparent. Notebooks with 650 MHz CPUs and 64 MB RAM rated almost equally to notebooks with 500 MHz processors and 128 MB RAM.

This indicates that if price is a concern, users should spend the money on more RAM instead of a faster processor if the price difference between a 500 MHz and 650 MHz CPU is greater than the difference between 64 MB and 128 MB of RAM.

Spinning spindles

Notebook makers often distinguish basic designs according to the number of drives or "spindles" a unit contains: the variations being one, two and three spindles. A three spindle design contains three drives. Usually these are the 1.44 MB floppy or Imation's 120 MB SuperDisk drive, a hard disk drive, and an optical drive such as CD ROM, CD R (recordable) or DVD-ROM (DVD read only memory) drives.

If DVD software was included we tested the notebook's ability to play a DVD movie. This feature is good for frequent flyers who want an alternative to the in flight movie. Most notebooks have mini jacks for headphones, so the movie soundtrack will not disturb those sitting near the user.

Drive swapping variations

With two spindle notebooks, full functionality is accomplished using drives that can be moved in and out of the computer. Typically, the hard drive stays resident, and the floppy and CD-ROM drives share a common bay. You put one or the other in as the need arises (on some models you can use three devices simultaneously although one will be connected by cable).

Hot swapping is the ability to remove a device and insert another device while the computer is powered on and running. Warm swapping means the notebook must first be placed in some type of powered down or standby mode before the devices can be swapped.

Cold swapping means the computer must be turned off completely before any devices can be removed or swapped. Fixed means the device is not intended for constant swapping, but does not necessarily mean it can't be changed. Sometimes turning off the power to the system and removing a screw or panel is all that is required to change a device.

Hot-swapping requires the installation of utilities software. Before removing a device and inserting another into a multi function drive bay, a user should be familiar with the hot-swap utility for that particular notebook.

Battery life

Many users complain about notebook battery life, or more accurately the lack thereof. Most manufacturers state that average battery life in a notebook is between two and three hours. However, if you are constantly accessing the mechanical drives, your battery will be depleted more quickly.

Some notebook models allow an additional battery to be inserted in a drive bay, which should come close to doubling the time between recharges.

Pointing devices

Most notebooks come with either a trackpad or a trackpoint device. A few come with both. The trackpad is a touch-sensitive pad, usually located directly below the space bar. You move the cursor or mouse pointer by drawing your finger or thumb over the pad surface.

The trackpoint is a small stub resembling a pencil eraser that protrudes from the keyboard, surrounded by the G, H and B keys. The mouse is controlled by pushing and pulling the stub—like a tiny joystick. Trackballs used to be a common built in pointing device, but we know of only a couple of notebooks that are available with this feature.

Continued on page 86

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RAM (MB)	64	128	128	64	64	128
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Display (in.)	14 1	14 1	14 1	14 1	14 1	14 1
Pointer/buttons	touchpad/3	touchpad/2	touchpad/1	touchpad/2	point stick/2	ErgoTrac/2
Battery	lithium-ion	lithium ion	lithium ion	lithium ion	lithium-ion	lithium ion
Floppy drive	fixed	fixed	optional USB	fixed	external parallel	hot-swappable
Optical drive	6x DVD-ROM	6x DVD ROM	8x DVD ROM	6x DVD ROM	6x DVD ROM	24x CD-ROM
Hot swappable	3-spindle	3 spindle	3 spindle	3 spindle	yes	yes
PC Card ports	2	2	NA	2	2	2
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USB ports	1	2	2	2	1	1
RJ 11/RJ 45 ports	both	RJ 11 only	both	both	both	RJ 11 only
PS/2 keyboard/mouse port	both	both	NA	both	both	both
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SysMark 98 rating	195	205	NA	190	179	206
Benchmarking scores SysMark2000						
Internet content creation	98	109	NA	84	84	112
Office productivity	93	97	NA	90	83	99
SysMark2000 rating	95	102	NA	92	83	104
Warranty (extendible)	1 year (2 years)	1 year (3 years)	1 year	1 year	3 years	1 year (3 years)
Price	$3 850 street	$3 996 retail	$5 199 retail	$3 438 street	$4 144 retail	$4 518 retail
Contact	800-565 2237	877-862 6435	800-263-3394	510-739 3777	800 567 1616	800-838 5487
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ATX 250W MID Tower Case
107 Win 98 KB & PS/2 Mouse
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32M Yamaha PCI 29
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S B LIVE MP3+/X-GAMER 127
S B LIVE PLATINUM 289
Diamond Monster MX400 75

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HP 4200 283

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Cambridge FPS 1000 4 1 85
Cambridge FPS 2000 235

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Asus P3V4X 159
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Asus P2 99 133
SoYo 6VBA+133 109
SoYo 6BA+III/IV 139/175
Abit BE6 V-2 189
Microstar 6199 VIA 119
SOCKET 370
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Abit WX6 189
SOYO 7VCA 150
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Pointer/buttons	touchpad/2	pointstick/3	touchpad/2	touchpad/2	touchpad/2	touchpad/2
Battery	lithium ion	lithium ion	lithium ion	lithium ion	lithium ion	lithium-ion
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PC Card ports	2	2	2	2	2	2
Infrared port	1	1	1	1	1	1
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RJ-11/RJ 45 ports	PC Card modem incl.	RJ 11 only	both	RJ 11/RJ 45 optional	RJ-11 only	RJ 11/RJ 45 optional
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S-video TV out port	yes	yes	yes	yes	yes	yes
Audio ports	2	3	3	3	3	3
Other						
Weight (kg)	3.4	2.5	3.85	3.25	3.65	3.3
Benchmarking scores SysMark98						
Office productivity	208	148	215	183	204	224
Content creation	247	230	210	199	212	244
SysMark 98 rating	224	176	213	190	207	232
Benchmarking scores SysMark2000						
Internet content creation	131	95	112	93	NA	125
Office productivity	105	70	106	91	NA	112
SysMark2000 rating	115	80	109	92	NA	117
Warranty (extendible)	1 year	3 years	3 years	1 year (3 years)	1 year (3 years)	1 yr parts 3 yrs labour (3 yrs parts)
Price	$3,899 retail	$5,299 retail	$5,923 retail	$3,399 street	$4,000 street	$3,900 retail
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- 128M PC100 SDRam 168 Pins 100MHz,
- 15GB Ultra DMA HD w/512K Cache
- Panasonic 1.44M Floppy Drive
- TNT2 32MB 4X AGP Video Card
- A-Open V.90 Int. Data/Fax/Voice Modem
- 48X IDE CD-ROM Drive
- Creative Sound Blaster PCI 128 Sound Card
- 450W Subwoofer Speaker System
- Deluxe ATX Tower Case & 250W Power Supply
- Microsoft® Internet Keyboard
- A-Open PS/2 Mouse w/Wheel & Mouse Pad
- Microsoft® Windows 98 Full Version CD w/Manual & License

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- 9.1GB Ultra 2 Wide SCSI Hard Drive
- Panasonic 1.44MB Floppy Drive
- ATI Xpert 2000 32MB 2X AGP Video Card,
- Built in Ultra 2 & Ultra-Fast/Wide SCSI Controller,
- 40X SCSI CD-ROM Drive
- Diamond MX-400 PCI Sound Card
- ATX Tower Case w/250W Power Supply,
- Microsoft® Internet Keyboard
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Personal metasearch engines

A trio of programs can help you get the information you really want

By Jacques Surveyer

Sure, the Internet is the world's biggest repository of information on just about everything but you usually want specific information not "everything" when you type a query into a search engine. If you've spent any time wading through hundreds or thousands of results to a Web query you've probably thought there must be a better way to crop away at the chaff and seperate out the best hits.

Well, the three personal metasearch programs in this roundup do exactly that. They are called metasearch engines because they don't actually search the Web. Instead they invoke a group of popular search engines to answer your query, then they sift through the results, presenting you with the best matching hits. And they really do a good job.

By using multi-threading these metasearchers simultaneously query several popular search engines (such as AltaVista, HotBot, Lycos, Infoseek, and Yahoo), eliminate duplicate finds, then present the results in the order of best matches to your original request. I found that all three metasearchers produced results that were much better than using a single search engine at a time. And, despite the fact that they were trolling through half a dozen or more search engines, I could continue to work in WordPerfect or Visual Page without any apparent downgrade in PC performance.

Even better, when I upgraded to a high speed digital subscriber line (DSL) Internet service from Bell Sympatico, the searches were so fast there was no need to switch out of the search engines at all. A number of metasearch Web sites are also available, offering the same simultaneous search capability (http://www.bequick.com, http://www.redesearch.com and http://www.thebighub.com are among the best). However, none of these Web sites offer the value of specialized category searches, results filtering, and storage/save features equal to those of the three programs reviewed here. In short, if you do a lot Web searches, don't leave your home page without one of these tools.

Copernic 2000

From: Copernic Technologies

http://www.copernic.com

Runs on: PC, Macs, Internet Explorer 4.x

Price: Free, $40 (Plus version), $120 (Pro version)

Pros: Great interface and results browser. Very easy to customize and use. Fast.

Cons: Cannot add your own choice of search engines.

Rating: 4.5 out of 5

Copernic 2000 is really three products: Copernic 2000, which can be downloaded for free from the Copernic Web site; Copernic 2000 Plus, which adds more search engines (up to 400), has no advertising bar, more predefined search categories, and a customizable category bar; and, Copernic 2000 Pro, which adds scheduled searches, email notification of search results, plus automated validation, downloading and refinement of found Web pages.

We liked Copernic for its very fast search times and the fact that you can select the search engines to be used even in the freebie edition.

Copernic 2000

And what Copernic does with the search results is even more impressive. With X-Portal you can only do one search at a time and you can't save or pass the search results to a colleague. However, Copernic, like KnowAll, is a standalone program that stores different search results in a list which can be passed along to a colleague with Copernic as an email attachment.

Click on a search result and a special Copernic browser fires up. Just like Internet Explorer 4 or Netscape, this browser can move back or forward, stop and refresh, or print the first Web site returned in the search. The Copernic browser also has buttons that allow you to switch up or down among the results. In addition, the browser has a document pulldown that lists the next 12 search results with

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Six surfer types identified

How would you feel if someone tagged you a "simplifier?" Or maybe you're a "surfer," "connector" or "bargainer." No matter your Internet habits, industry-consulting firms Media Metrix Inc. and McKinsey and Co. have you pegged in their study of "Netizen" types.

In their joint-publication, *All Visitors Are Not Created Equal*, Media Metrix and McKinsey set out the following categories.

- **Simplifiers.** Users in this category "need end-to-end convenience" according to the study. They tend to surf with a purpose, to make a purchase or seek specific information. Though they don't spend much time online (only seven hours a month), 49 percent have used the Net for more than five years. They account for half of the financial transactions online and want fabulous customer service to accompany a purchase.
- **Surfers.** This group seeks new experiences. Only eight percent of Netizens fall into this category but "they account for 32 percent of online time—far more than any other segment in the study." They read more, move fast, and are attracted to "cutting-edge" sites with new and changing information.
- **Connectors.** This group includes newbies "seeking reasons to use the Internet." They comprise a large group (36 percent of the online population) but less than half have made purchases. They can prefer sites with corresponding bricks-and-mortar stores.
- **Bargainers:** This group includes auction site junkies who sift the Web for a good deal. They represent eight percent of Netizens and don't spend much time online. Nonetheless, eBay has these fish on a hook. Fifty two percent of the veteran auction site's visitors are true bargainers. Of course, eBay's "community" atmosphere helps because bargainers like to belong.
- **Routiners:** These Netizens take time to read content, but don't buy much. They tend to stick to a handful of Web sites, particularly those with news and financial content. "Routiners want superior content and the sense they are getting 'something special.'"
- **Sportsters.** This group prefers entertainment and sports info. They tend to have short attention spans, however, spending only seven hours a month online, and prefer bright [illegible] sites.

—Stefan Dubowski

Campuskiss.com brings Canadian students together

By Tom Venetis

It began as a Valentine's Day project but quickly became something much larger. "We wanted to launch something of a personal service for students," says Nos Gurza, president of campusaccess.com (http://www.campusaccess.com), a Toronto-based company that provides online information and services for Canadian university students.

The project, campuskiss.com (http://www.campuskiss.com) was supposed to be just another one of campusaccess.com's online services, which include providing information on topics ranging from career planning, graduate and professional schools, teaching overseas, and internships. The site also has articles from experts on a variety of subjects such as health and employment.

Campuskiss.com was developed to allow students to meet each other online, possibly as a prelude to future dates. However, soon after its Feb. 14 launch, it grew into its own community, which currently logs some 11 000 hits per day, according to the company.

Gurza says campuskiss.com is now a meeting place for students from across Canada. Many are using the site to form clubs or to use the instant messaging services to keep in touch with friends at other campuses. The groups range from religious clubs, movie and music discussion groups, to forums in which students discuss issues surrounding sexuality and dating.

"People are coming because they are seeing it as an innovative service," Gurza says. "There was nothing to date that was linking the student community in Canada together. We are providing that channel as an empowerment tool for students to communicate freely with other students across the nation. They are no longer limited to their campuses or geographic boundaries."

Jordan Ravka, president of Toronto-based Visual Expressions Digital Media, which designed campuskiss.com, says the distinguishing feature of the site is the variety of ways it allows students to communicate with

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Personal metasearch engines

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any keywords in the title highlighted in yellow. Though results are already sorted by relevance, this feature is very handy for quickly finding those that more closely match your query. This attention to detail is one of Copernic's virtues.

With Copernic, you can validate, download, and refine part or all of the search results. The validate feature checks that links are current and the page still meets your search requirements. Download allows you to download the page and all images for offline browsing. Refine allows you to polish search results with additional conditions.

Finally Copernic allows the user to customize interface layouts of both the main program and the results browser. In sum, Copernic is by far the most comfortable of the metasearch engines to work with.

KnowAll
From: WordFree Corp.
http://www.wordfree.net
Runs on: Windows
Price: $135
Pros: The 100,000-word lexicon and Organic Intelligence make this program the only search engine that returns ideas rather than sites to be searched.
Cons: Can miss the search mark by a wide margin at times. Also gets lost in search space unless you reign in search parameters.
Rating: 4 out of 5

KnowAll is unique. Instead of bringing back lists of sites that you have to go to and explore, it actually tries to answer your question. Sometimes KnowAll is uncanny, correctly answering queries like "Computer: tell me the sci fi movie or TV program before Star Trek that had a computer that would answer questions posed by crew members." Other times it is plainly dumb and dumber than a data talking head on a bit bucket heap. In answering my questions on sports trivia, chemistry, geography and economics, KnowAll came out Dr. Jekyll erudite more often than a Mr. Hyde search jerk. However, more than any other engine, KnowAll could also go into a deep think funk.

Like the other two metasearchers, KnowAll allows you to continue working on your PC while it trolls the Web for answers to your questions. I would have rated KnowAll as outstanding except that it fumbled on simple finance and economic searches, to which both Copernic and X Portal returned nearly identical and robust answers.

But KnowAll is the most customizable of the search engines where it matters most: in how the search is done. With KnowAll, you can set a whole range of values including timeout time, maximum number of search threads, eliminate-site filters, search engines to be used, depth of search from original search engine site, and maximum Web sites to search per search engine seek. Most important of all, though, you can add to the list of more than 800 search engines KnowAll uses for searching.

Like X Portal, KnowAll has a 100,000 word lexicon it uses not only to rank the returned answers but to pre-qualify the question and choose relevant answers. With KnowAll, you can customize your search to include any search engine on the Web. KnowAll, like Copernic, allows you to schedule searches with a stored search plan, refine an already concluded search with new search words or settings, and save search results for later retrieval and further analysis.

X-Portal
From: Kaufman Computing Services Ltd
http://www.kcsl.ca
Runs on: Windows, Internet Explorer 4.x
Price: $50
Pros: Built into Internet Explorer browser interface. Has 22 reference sources. Can precisely configure search engine sources.
Cons: Search results can't be saved. Less convenient display and sorting of search results.
Rating: 4.3 out of 5

The developers of X Portal pride themselves on their references—more than 22 including American Heritage Dictionary, Columbia Encyclopedia, Simpson's Contemporary Quotations. These references serve a dual purpose. First, they shortcut a lot of searches, by nearly instantly finding and displaying facts ranging from the definition of a gizmo to the location of Transylvania (it's a plateau next to the Carpathian mountains of Romania near Hungary). Second, these references aid in searching the Web because the references help to rank the relevance and/or filter the Web pages returned by the various search engines used in an X Portal query. X Portal developers believe their references make them a better search engine.

X Portal requires Internet Explorer 4.x or higher to run. Indeed, it provides a copy of Internet Explorer 5.0 on its installation CD-ROM. And one can see why, as X Portal attaches itself as an add-on to Internet Explorer (a Netscape version awaits the introduction of Communicator 5.0). When you click on the X Portal icon (or select X Portal in Explorer Bar, under the View menu) the software pops up a left window pane with two tabs—References and Search.

Select the References tab to consult the 22 reference authorities (one could work offline in X Portal just as a reference source). X Portal does not have the convenience of different points of entry into its reference sources—such as searching a dictionary for antonyms or synonyms, or an encyclopedia for historical timelines—but the sheer speed of X Portal puts the CD-wharrings to and fro of Encarta and WorldBook to shame.

X Portal primarily provides better searches on the Internet. It is not as fast and convenient as Copernic and does not always have the breadth of KnowAll but it provides the ability to choose the search engines used in a query (in fairness, Copernic and KnowAll both allow editing of a preset list of search engines). X Portal also scans your query for annoying typos and spelling errors that can make a search go awry. In addi-

➤

X-Portal

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tion. Its Search Engine Wizard makes it dead simple to add a new search engine (I added the popular AskJeeves.com and Google.com to the default list of more than 40 search sites).

There are three drawbacks to X Portal. First, searches can't be saved—the next search you do replaces the previous results. Secondly, the results are displayed and sorted on one criteria: relevance. Allowing you to sort results by title or source, for example, would be a nice option. Finally, I would like to be able to group a bunch of like search engines—say those dealing with sports trivia—then save that list so I don't have to reconfigure my search choices every time I have a sports trivia query. The X Portal developers are aware of the problems and promise these as features in an upgrade of X Portal.

In sum, when looking up facts for quick resolution or precise Web searching, I use X Portal.

Conclusion

By using a single search engine, even the prodigious AltaVista, you are only searching 30 to 40 percent of all Web pages. To make matters worse, as many as 25 percent of page results returned by search engines are no longer valid and the same number of results can be for duplicate or nearly identical pages because of mirroring archives and sheer redundancy of coverage.

Metasearch engines don't solve all these problems, but they can improve the overall quality of results dramatically. To get a taste of what is possible with a personal metasearcher, download a free copy of Copernic. It will definitely help in your Web searches. When you are convinced of the virtues of metasearching, you can choose from one of the more deluxe products reviewed here. Each has unique and distinctive search characteristics that will fit your style and requirements. ❑

Jacques Surveyer is a consultant and writer who is searching for search engine tips at http://www.inforamp.net/~jbsurv.

Campuskiss.com

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each other.

"Although it started as a dating service, I'm amazed at how many people come just to meet other people," Ravka continues.

In addition to text based communication, the site allows users to post multimedia files, including images and sound and video clips. The multimedia posting feature was added to help students present a more rounded image of themselves to others, rather than being limited to a user name and personal description.

Ravka says his main goal is to continue to spur the development of communities and to encourage the site's visitors to supply content. Currently, his biggest difficulty is keeping the system running because of the amount of traffic the site has generated. ❑

Interactive Web-based browser debuts

SAN FRANCISCO—CrowdBurst Corp (http://www.crowdburst.com) has unveiled a free Web-based browsing service that allows users viewing the same page to chat, leave notes and browse the Web together.

A new window appears when the visitor clicks a link on the CrowdBurst home page or at a Web site on the CrowdBurst network, according to CrowdBurst marketing director Nathan Tyler. "Inside that window you can communicate with people who are viewing the same page," he said. "For Web sites, CrowdBurst opens a new window in which they can interact with their customers."

Tyler says the time was ripe for a browser like CrowdBurst, which he claims is easier to use than other browsers and does not have to be downloaded. "We are Web based, whereas many of the other services in this area are client based and require a large download and installation process. CrowdBurst appears immediately to the end users. It makes it a lot easier for people to use our service."

CrowdBurst, founded in August 1999 by four Netscape veterans and a graduate of Massachusetts Institute of Technology (MIT), released a preview version of the browser service in late April. It also announced a partnership with CoffeeCup Software, which will bundle the service in its HTML tool, allowing for the easy integration of CrowdBurst into Web sites. Other CrowdBurst partners include beautyQ.com, Elek.com, Financial Finesse, FreeOnline, RedTinker.com and SF Interactive.

CrowdBurst says its users get instant access to chat rooms, can leave messages on bulletin boards, establish special interest groups, and browse the Web in groups.

"On the Web today, you can be in the middle of what is the equivalent of Times Square and there isn't a single person around. There's no one to talk to, no one to give you help," says CrowdBurst president Cary David. "Our goal is to bridge the gap between the static content of the Web and the people surfing the Web. With CrowdBurst, people burst out of the page, adding immediate interactivity and enjoyment to the Web surfing experience."

To run CrowdBurst software, users need a system running Windows 95 or 98, and a minimum of Internet Explorer 4.01 or Netscape Navigator 4.0.

—*Newsbytes* ❑

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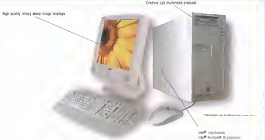
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Tel (519)599-7548

Woodstock
L&L Bruch Consulting
Tel (519)421-2224

All systems come with a two years parts & labour depot warranty. Monitors are not included in system configurations.
**Manufacturer's suggested retail price. All prices shown are net before applicable federal and provincial sales taxes, shipping and handling. All prices and configurations subject to change without notice.
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Gizmos: cool design, uneven execution

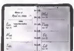
Continued from page 50

Calculators (+)

A look at the calculators is enough to convince us that Play was up to and beyond its usually high standards for realistic and snappy looking software. And the useful scientific and financial calculators included in the Gizmos pack found a home on one of our hard drives.

- Includes four types of calculators: simple, scientific, programmer's and financial.
- All are easy to use and beautifully rendered.
- You can send the contents of the display to a printer.

Calendars (+)



These Gizmos were right up to date. The calendars worked well and printed out in beautiful full colour (or grayscale).

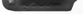
- Daily, weekly, monthly and yearly calendars.
- You can track appointments, birthdays, holidays etc.
- You can print directly from any calendar.

Clocks (-)

The clocks, on the other hand, were really disappointing. Their style was a bit too '64 World's Fair modern, and even worse, they just did not work properly. Not the usual Play standards.

- Difficult to configure and select consistently.
- Disappeared unexpectedly and didn't reappear when the alarm was tripped.
- No way to vary the size of the clock. Too bad.

CD Player (+)



We initially had device conflict problems with the CD Player. For reasons unknown, it would not play audio CDs in the internal CD-ROM drive of a system that has both an internal and external CD-ROM drive. However, once the external drive (a CD burner) was removed, and the system was rebooted, the audio CD Player worked like a charm.

- The CD Player has an interesting Net Update button, which scans the Internet for the name of your CD. When it works (and it worked for three of the four CDs we tested) it identifies the name of the CD and the titles of the songs on each track.
- The CD Player looked great and was easy to use.
- The Volume, Bass, Treble and Balance controls had minimal effect to our ears.

Colour Organ, Electro Gizmo Cube, and Scene Saver (–)

The screen savers in this set were all very interesting, but we found them confusing to use. Also, some didn't work well on the test machine.

- Colour Organ is a psychedelic light show that can be varied based on sounds playing from an audio CD in your PC.
- Electro is a 3D sphere that makes sounds as

Continued on page 54

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Q: What do I need to run 3web?
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Computing quickly on the move

Continued from page 76

Fujitsu has an unusual device called the ErgoTrac, which is a dished button about the same diameter as a dime. The button works like a omnidirectional rocker switch, so pushing the button in any given direction results in the mouse pointer moving in the same direction. We've seen the device only on Fujitsu notebooks, although the company also makes an external ErgoTrac device that plugs into a PS/2 port.

Warranty

Often warranties on components like batteries and plug-in devices are different (usually shorter) than the notebook warranty. For example, some notebook batteries are covered for as few as 90 days.

Many notebook manufacturers offer longer warranties as options.

International travelers should also consider what service is available in countries in which they expect to travel.

Special security features are available on most of the notebooks we tested. These may be important to users concerned about security issues. Space considerations prevent us from listing the individual security attributes of each model so please consult manufacturers for further information.

The candidates

General product specifications

All the notebooks we tested had lithium-ion batteries, TFT active matrix screens, a reinforced slot for a security cable lock, docking ports, infrared ports, 8 MB of video RAM, and external VGA monitor ports. Most had mini audio jacks for headphones, line in, and microphones. With the exception of the Apple notebook, all had serial ports and enhanced parallel ports.

All benchmarking tests were performed with each unit plugged into 120 volt AC available at the testbench outlets. When configured with either power management software or in the BIOS some 650 MHz notebook processors are capable of processing commands at 500 MHz to conserve battery life. By using AC wall current this was avoided.

Some manufacturers provide suggested retail prices, others estimated street prices. Retail prices are suggestions, street prices are estimations. At the risk of sounding like a petrochemical company apologist, let me specify that prices vary from region to region.

Our benchmark testing was conducted with BAPco SysMark98 and SysMark2000. These programs install common word processing, spreadsheet, graphics, and other programs, open these programs and run tests, then uninstall them. A rating is provided that is the average of two specific tests, content creation (or Internet content creation in SysMark2000) and office production.

Acer TravelMate 732TX

Tel: 800 565 2237 http://www.acer.com

Estimated street price: $3,850

Benchmarking scores were average, which is to be expected considering our evaluation unit had only 64 MB of memory and a 500 MHz CPU. A thorough user manual is included.

Acer Time Machine software will restore your data to the last time it was uncorrupted. Windows 98 was installed on our test model, but this notebook is also available with Windows 95, NT 4.0 or 2000.

The one year warranty is upgradable to two years.

Angel 8600

Tel: 877-862-6435 http://www.angelcomputer.com

Suggested retail price: $3,996

This was the only Windows PC we tested that included a FireWire port. Windows 98, Corel WordPerfect Suite 2000, a Lucent V.90 data/faxmodem, and a carrying case are standard. Windows 95, NT 4.0, and 2000 are available. RAM upgrades to 256 MB are optional, as is the Imation LS 120 Superdisk, which also reads standard 1.44 MB floppies. Angel's Web site allows users to choose the options they want in a notebook. Warranty period is one year, with a three-year option available.

Apple Powerbook G3

Tel: 800 763 3384 http://www.apple.ca

Suggested retail price: $5,199

This is a great notebook with lots of features, especially the two USB and two FireWire ports. It is essentially a Mac that can be tucked under one arm. Apple advertises that users can now make and edit movies anywhere, and from our experience with this unit, it's a realistic claim.

The unit was a pleasure to set up, as it only required plugging in the AC and switching on

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Acer 40/50X $53/59
Creative 52X $62
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Diamond Viper770 32M $165

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SB 32bit PCI Ensonic $29
SB 128bit PCI $47
SB Live Value $75

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USR 56K V.90 ISA $11[illegible]
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P-III 600E $1499
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the power No software had to be loaded which was a treat. It was difficult keeping passersby out of the Test Lab when the DVD movie was playing.

Asus L8400
Tel 510 739 3777 http:// www.asus.com
Estimated street price $3 488

The magnesium alloy chassis on this unit is eye-catching There are two USB ports Two different bags were included, one typical notebook bag and another insert or protector This model was shipped to us with only 64 MB RAM, and therefore didn't do as well on the benchmarking It is possible to upgrade system RAM to a maximum of 256 MB The Global Service Member warranty is designed for users who travel internationally

Compaq Armada M700
Tel 800 567 1616 http://www.compaq.ca
Suggested retail price $6 144

At an easy to-carry 2 7 kg, this was the second lightest (by 200 g) notebook in our test this month An external parallel floppy drive extra pencil eraser sized button cap for the pointing stick, French and English manuals, and restore disks for Windows 95 and 98 are included

The floppy drive is an external parallel unit but a floppy drive can also be inserted in the MultiBay The MultiBay also supports CD-ROM or DVD ROM drives a second battery, a second hard drive, a SuperDisk LS-120 drive, or a weight saver An integrated 56Kbps V90 modem and 10/100 network interface card combo is provided. The Compaq modem cord was the only one with an interference reducing coil.

Fujitsu Lifebook E Series
Tel 800-838 5487 http://www.fujitsu.ca
Suggested retail price $4 518

Our evaluation unit came with 128 MB RAM but this notebook comes standard with 64 MB, which retails for $4,199 Fujitsu's Flexible Bay can accommodate SuperDisk, an additional hard disk DVD CD-ROM, CD RW (rewritable), and floppy drives, a lithium ion battery, or the included weight saver spacer that serves as a cover for the empty bay

Instead of track point, it uses a 1 9 cm button pointing device called the ErgoTrac. It takes getting used to, and like most new devices is annoying at first to those who have touchpad pointing stick, trackball, or mouse experience A touchpad is available as an option An LCD Status Display window provides slightly more information than traditional LEDs, which are the notebook equivalent of automobile dashboard "idiot lights." The one-year warranty can be extended to three years and is available internationally Technical support is available 24 hours a day year round.

HyperData 6020
Tel 800 927 4777 http://www.hypernotebook.com
Suggested retail price $3 889

Benchmarking results were excellent with this unit, courtesy of the 650 MHz CPU and 128 MB RAM RAM is upgradable to 576 MB. This was one of two systems we tested that come with Windows 2000 installed. A V90 PC card data/faxmodem is standard, as is a carrying case Parts and labour are covered under the one year warranty

IBM ThinkPad 600X
Tel 800 426 2255 http://www.ibm.ca
Suggested retail price $5,298

This was the other system we received that came with Windows 2000 installed. At 2 5 kg it was the lightest model we tested, yet is very solidly built. IBM's keyboard was our favourite Storage devices can be warm swapped in the UltraBay A floppy drive can be inserted internally into the UltraBay or attached externally SysMark98 ratings would have been higher had they not been dragged down by sluggish performance in Word and Excel. The EasyServ warranty service is for three years.

►

NEC Versa LXI
Tel 888 863 2040 http://www.nec-computers.com
Suggested retail price: $5,923

This unit is technically warm-swappable as it must be powered down to standby mode before changing devices. The optional devices that can be warm swapped are: CD-ROM, SuperDisk, and DVD-ROM drives NEC VersaBay III battery pack, or extra hard drive. Other devices must be cold-swapped The standard warranty is for three years.

Sceptre S6600
Tel 800 788 2878 http://www.sceptre.com
Estimated street price: $3,390

Standard equipment is a 1 44 MB floppy drive, 6x DVD ROM and a V90 data/faxmodem Options include a built in Ethernet card, a 120 MB SuperDisk drive, 24x CD-ROM drive, or a Zip drive Our test model came with only 64 MB RAM but can be upgraded to 512 MB A hard drive upgrade to 14 GB is also available. The standard warranty is one year, but an optional three-year warranty is available

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Estimated street price $4 899

This is the only notebook we tested with a 15 inch screen The 650 MHz processor combined with 256 MB of RAM provides lots of power We weren't able to measure this power completely because our evaluation unit was unable to run SysMark2000 SysMark98 ran fine Our test model came with a built in LS-120 SuperDisk drive. An extra feature is the hardware volume control Corel WordPerfect Office 2000, PrintOffice 2000 and Windows 98 SE are included. TTX's one-year Xtracare warranty program offers 48 hour courier depot repair, and 24 hours, seven days a week toll-free bilingual tech support. The warranty can be extended to three years.

Ultinet Powernote 3100c
Tel 800 513 7732 http://www.ultinet.ca
Suggested retail price $3 986

Our evaluation unit really kicked butt in the benchmarking. The overall Sysmark98 score of 232 was the highest of the units we tested Windows98 Corel Office Suite 2000 and Norton System Works are included as is a carrying case The floppy drive bay is interchangeable with an LS-120 Superdisk drive or another battery Ultinet's Web site allows users to choose what options they want in a notebook. Warranty is one year for parts and three years for labour It can be extended to three years for parts for an additional $150

Buying advice

Playing with the latest hardware is the best part of a technology reviewer's job. The hardest part is giving advice about a specific brand to buy Every person will have his or her own idea of the best notebook, which is how it should be

Some observations: the Ultinet entry returned the best benchmark scores The TTX had the largest screen while the IBM was the easiest to carry Asus had the lowest price NEC and Compaq had excellent large company warranties The Apple was the easiest to set up

Dave Chappelle is a *TCP* Lab product reviewer He can be reached at dave_chappelle@tcp.ca.

When print quality counts

Continued from page 74

- Accepts paper sizes up to 13x19 in. with bleed
- 47 decibel noise level is moderate.
- 8 MB onboard memory
- Can be used with HP JetDirect print server for network printing.
- Compatible with DOS, Windows 3x/9x/NT/2000, and MacOS 7.6.1 or later
- Ships with paper support detached, and requires minimal setup.
- 1 year warranty

The 1220Cxl also uses the new PhotoREt III technology, but the wider carriage makes the machine more suitable for use in a business environment. As with the other HP printers tested this month, a number of steps are required to take full advantage of the 2,400x1,200 dpi printing mode. However, PhotoREt III printing is still very impressive, delivering high quality output that is nearly indistinguishable from a photograph.

Without networking onboard, this printer is better suited for the small office environment than a high volume workplace. It brings a lot of professional features into a smaller office, including tabloid-size printing. While not as impressive as the 2500CM model (below), the lower cost of this unit device makes it a really nice addition to an office with more moderate printing needs.

Hewlett-Packard 2500CM
Estimated street price: $2,049
http://www.hp.com

- The CM model comes with both parallel and Ethernet connectivity, and has an option for serial connection.
- 600x600 dpi resolution uses PhotoREt II technology
- 20 MB standard memory is expandable to 76 MB
- Draft speed is rated at up to 11 ppm black.
- Our test photographic image took 4:12 min
- Features three input options: a sheet feeder and two trays.
- Handles up to 13x19 in. paper
- Each of the ink colours (cyan, magenta, yellow and black) is in a separate cartridge for more efficient ink use.
- Features Adobe PostScript 3
- Compatible with DOS, Windows 3x/9x/NT, MacOS, OS/2, and Unix
- Networking protocols include IPX/SPX, TCP/IP, DLC/LLC, AppleTalk and NetBEUI
- Ships in one (huge) piece. When bottom paper tray is used for larger paper sizes, a plastic drawer cover can be attached.
- 1 year warranty.

The Deskjet 2500CM model is big, both in quality and in footprint. It's really a professional model, with multiple paper trays, separate high-capacity ink tanks, and the ability to handle 13x19 in. paper. It also comes with built-in networking, making it an ideal proofing tool in a production environment. However, those with limited space should really think before buying this unit, because it is quite a large device, especially when the lower drawer is extended. Where space isn't a problem, however, the features and quality make the 2500CM worth every penny.

Editor's choices

Consumer inkjets: Lexmark Z52 Color Jetprinter
It's a tough choice this month, because all of the printers reviewed produced such outstanding output. Lexmark clinches it for a few key reasons, however. First, the print quality is outstanding all around, even on bond paper. Second, the Accu-Feed technology handles paper better than almost any other printer. Third, the draft text speed is the highest currently available—a great feature for those who print out text on a regular basis. Finally, it has the lowest price this month (along with the Epson model). All in all, it's an excellent choice.

Business inkjets: Hewlett-Packard Deskjet 2500CM
It's hard to argue with the quality and versatility of this model. It has built-in networking (with a couple of different connector types no less), has very flexible paper handling, and even the older PhotoREt II technology offers outstanding print quality. The only problem is finding the desktop space for it!

Culture-Jammer's encyclopedia

NB—The Culture-Jammer's Encyclopedia is an online reference to all things deceptive, devious, fraudulent or subversive, built up over a number of years on the Web. "Pranks and hoaxes and delusions and frauds remind us that we're easily fooled and that we aren't quite as smart as we sometimes think we are," says the site's operator.

http://www.syntac.net/hoax/

Free movies online

NB—This site allows Web users to view more than 1,000 full length feature films for free. The portal offers both long- and short-form entertainment ranging from indie shorts to cartoons to 90-minute-plus feature films. Users can choose to watch movies from a number of categories, ranging from action to comedy and westerns to cartoons.

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DVD and MP3 a-go-go

X10 advances its mission to connect all things electric in the home

By Emru Townsend

The digital revolution has proven to be a wonderful playground for us media polyglots. I love that I can put most of my music collection on my computer and play anything I want with a few mouse clicks. It's the height of coolness that I can put a shiny DVD—less than one tenth the size of a videocassette—into my computer and watch movies with crystal clarity that won't degrade over time.

DVD Anywhere 2000
MP3 Anywhere 2000
From: X10
Tel: 800-675 3044 http://www.x10.com
Price: $109 (DVD Anywhere) $75 (MP3 Anywhere)

There is a problem, though, summed up in an old mantra location, location, location. All this multimedia stuff is great but the idea of watching *Contact* in my home office is not appealing, and I don't have a DVD player for my television Furthermore, while I like having thousands of songs at my fingertips while I'm working, I'd appreciate the same convenience even more when I m elsewhere in the house.

I know, I know I could just buy a DVD player and a 200 CD jukebox But I'd rather spend the $800 or so on the movies and the music. I already have the gadgetry—it's just spread between two rooms

X10 feels my pain For the uninitiated, X10's main business is the selling and licensing of inexpensive and easy-to-use products that enable you to remotely control the electric devices in your house In short, it has years of experience when it comes to creating devices for people who just have to have absolute control over everything electric in their homes.

Two of X10's recent products, MP3 Anywhere 2000 and DVD Anywhere 2000, are a bit of a departure from its usual fare, but they fit in with the company's twin themes of remote control and easy setup.

The basics are fairly simple if you have a DVD Anywhere kit, connect the audio and video outputs from your computer to the cool-looking transmitter, and connect the cool looking receiver to any television and/or sound system within 30 m (100 ft.). The end result. any NTSC video from the DVD drive and any audio from the sound card will be transmitted wirelessly to the receiver, which will happily pipe the signals to the aforementioned television and stereo. The MP3 Anywhere kit is almost identical. it just lacks video jacks.

If you're a longtime reader of *The Computer Paper*, this setup might sound familiar I wrote about a similar gadget, AITech's PC/TV AirLink, about three years ago. The principles of the devices are the same, and the transmitters and receivers are similar in design and construction. The difference is as the X10 touch.

That touch includes ease of installation. Aside from the receiver and transmitter, the only other hookup is a small radio receiver, which connects to a free serial port. The X10 Boom 2000 software setup is similarly hassle free. The X10 signature also includes ease of use Boom 2000 is really just a central control panel for your existing MP3, CD, and DVD software, relaying commands from the included MP3 Remote Control to the appropriate player Boom 2000 automatically maintains a list of your installed players (it even updates the list when new software is installed), so it's just a matter of selecting the player for a certain format.

So let's say everything's set up and I want to listen to my MP3s from somewhere else in the house. All I would have to do is start the Boom 2000 software, then press the PC, MP3, and power buttons on the MP3 Remote. This launches the selected MP3 player, which I can then control from the wireless remote, which uses radio frequency instead of infrared to transmit commands, so line-of sight is not an issue (If your home is like ours—that is, cluttered with remotes for various electronic doodads—take heart, the MP3 Remote can be programmed to recognize most VCRs, televisions, cable boxes DVD players, satellite receivers, and, of course X10 modules.)

The problems start when you decide to watch a movie. The transmitter and receiver do a good job of beaming video to your TV, but bear in mind that the output is only as good as your computer's video out. When I used the ATI All in Wonder AGP card, I had to fiddle extensively with the brightness, contrast, and color controls to get my image to look just right It's doubly aggravating that DVD Anywhere can't handle S Video

The real flaw lies in the Boom 2000 software which despite its claims doesn't acknowledge any DVD player software except the X10 Media Player (Windows Media Player, by any other name), which with my DVD-ROM setup dutifully played the disc's audio but displayed no video. After spending a considerable amount of time with X10 technical support, a representative finally acknowledged that this is an issue that needs resolving and that a revamp of the software is promised to arrive soon However, given the five weeks that elapsed between my first phone call reporting this problem (with the previous iteration of the Boom software) and this promise, I'm not terribly encouraged.

There is a similar problem with playing CDs. only the X10 Media Player is acknowl

Continued on page 97

Tektronix Phaser 850 colour a solid hit

By Dave Chappelle

Tektronix has long championed the advantages of solid ink colour printers over colour lasers. It claims solid ink printers were conceived and designed as colour printers from the ground up, unlike colour lasers, which take part of their technology heritage from monochrome printing. Among the advantages cited by the company—which was recently acquired by Xerox—are faster print times, more uniform dots for better colour, and a simpler design that requires less maintenance. Tektronix also claims the inks, which are actually edible (but probably not too tasty), are environmentally friendly.

Tektronix Phaser 850DX
From Xerox
Tel. 877 662 9338 http://www.tektronix.xerox.com
Price $4,195 to $7,195 (depending on configuration)

The Phaser 850 uses ColorStix solid ink refill sticks. There are no cartridges to fill, change or throw away. The ColorStix sticks are like large crayons, roughly 3.8x2.5x2.5 cm (1.5x1x1 in.). The sticks come in four colours: cyan, magenta, yellow and black. Each stick has a different shape, so they can be "keyed"—each colour can only be inserted into its correct compartment. Since black ink is used most, Tektronix has implemented an incentive program in which black sticks are free for the life of the printer. The company expects this will make the cost of printing black and white comparable to that of a laser printer.

Another characteristic of solid ink printers is that pages do not require a drying period, as is the case with inkjets. Attempts to smear or smudge a print job immediately after it emerged from the printer were unsuccessful. Solid ink users won't have to rush to the printer to rescue their pages before someone moves and smudges them.

If scratched with a fingernail, however, the printed ink, which has a wax-like consistency, can be lifted from paper, much like a scratch-and-win ticket. And, if a page printed with solid ink is left near something warm, the ink can melt and smear.

We printed several photographs, and the print quality was excellent, even on standard bond paper. Quality would probably have been even more impressive if we had used Tektronix brand paper.

Out of the box

The review unit we received was the 850DX, the top-end model that sells for more than $7,000. Other models are available from $4,195.

Full-colour diagrams in the setup guide are easy to understand in any language. Installation by a licensed Tektronix technician is available.

A CD-ROM contains setup instructions, software drivers, user manuals and videos, colour correction and technical support Web links, online registration, Acrobat Reader for viewing the manuals, and Quicktime Player for the videos.

A display on the top of the printer indicates the operating status and allows users to change printer settings. With the touch of a button, a full-colour menu map can be printed (which can be posted near the printer or distributed to users).

The printer can be connected to both Mac and Windows systems, and has parallel, USB, and Ethernet ports.

Maximum output in Fast Color mode is 14 pages per minute (ppm) on paper and 6.5 ppm on transparencies. Standard mode is recommended for best quality full-colour work. Output in this mode is 8 ppm with paper and 3.5 ppm with transparencies. High Resolution/Photo mode provides 1,200x600 dpi resolution on paper at a speed of 2 ppm.

Options include high-capacity paper tray assembly, additional memory in 64 MB or 128 MB DIMM configurations, up to a 256 MB maximum. An internal IDE hard drive extends font capacity and is required for collation. In addition to double-sided printing on paper, the

Continued on page 93

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Impaq notebook clocks 750 MHz

At the end of April, Intel announced the release of its fastest Mobile Pentium III processor which clocked in at 700 MHz. Yet two weeks earlier, we had received a notebook in the Test Lab that was running a 750 MHz Intel processor. How this could be? The notebook in question from Vancouver-based Impaq Technology Inc is powered by a CPU designed for desktop PC.

Impaq iNote 6120
From: Impaq Technology Inc
Tel: 800-663-8272 http://www.impaqtech.com
Suggested retail price: $4 329

In the days when the speed of mobile CPUs lagged far behind what was available for desktop machines, this practice was more common. The trade-off then for using a faster desktop processor was higher power consumption and more heat generation—which was also the case with this unit.

System details

Our evaluation unit had Windows 98 installed, but the iNote 6120 is also available with Windows 2000 or Red Hat Linux. It features a 14 1-inch screen, 128 MB RAM expandable to 256 MB a 12 GB hard drive touchpad with two buttons, 6x DVD-ROM drive built-in floppy drive, two PC Card ports, a USB port, infrared port, port replicator port, external monitor port audio ports and a hardware volume control. A carrying case is included.

An entry-level model is also available with a 533 MHz Celeron CPU, 64 MB RAM, 6 GB hard drive 24x CD-ROM drive and the same ports and accessories as the desktop replacement model for a suggested retail price of $2,948. Adding a 56Kbps V90 modem is an extra $219.

SysMark scores

The iNote returned a sparkling score of 267 overall on the SysMark98 test suite, but the unit could only be operated for 70 minutes before the the battery was depleted. Still, users desiring maximum CPU performance—and who are never more than an hour away from a wall plug—may want to consider this notebook.

With a 750 MHz processor and 128 MB RAM we anticipated the unit's benchmark scores would be high, and they were as the following shows.

SysMark98	**Scores**
Office Production	260
Content Creation	275
Overall SysMark98	267
SysMark2000	**Scores**
Office Production	120
Internet Content Creation	138
Overall	127

— *Dave Chappelle*

Tektronix Phaser 850 colour a solid hit
Continued from page 92

Phaser 850 is capable of printing transparencies, letters, envelopes, labels and cards.

Tektronix is targeting sales of this enterprise printer to small- and medium-size businesses. The Phaser 850 is available in three models.

- Phaser 850N: Comes with 32 MB SDRAM, 136 fonts, and a suggested price of $4,195
- Phaser 850DP: Ups the RAM to 64 MB and offers two-sided printing for $5 495
- Phaser 850DX: Has 128 MB SDRAM, a 6 GB hard drive and a larger-capacity paper tray for $7 195.

ColorStix ink sticks are available in two- or five-stick bundles of the same colour. Cost is $120 for a two-stick bundle (includes one black stick) or $261 for a five-stick bundle (includes two black sticks)

The standard one-year warranty can be extended at extra cost to a total of four years ❑

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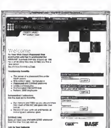
Canadian Web recruiter woos employers with online services

By Stefan Dubowski



A Canadian company is changing the rules of recruitment with an online service geared towards employers.

On April 18 BrainHunter.com (http://www.brainhunter.com) unveiled its online hiring portal, which it claims is faster and cheaper than conventional head-hunting practices.

"It provides full service online recruitment and it does so at a cost that is 70 percent less than traditional employment agencies," says BrainHunter.com's chief executive officer, Raj Singh.

The company's chair and president, Jason Mann, stressed that Brainhunter.com is not simply an online job bank.

The new online service connects job boards like JobShark.com and Monster.com with companies that are looking for staff. It pays a subscription fee to publish job descriptions there.

Though in some ways a competitor, the Professional Computer Consultants Group (Procam) helped BrainHunter.com get off the ground. Procam also offers recruitment services, albeit the conventional, non-electronic kind.

"We feel there's greater benefit for co-operation and collaboration in the Canadian marketplace," Singh said, speaking for both BrainHunter.com and Procam.

Mann added that Procam recruits IT professionals, whereas BrainHunter.com targets every profession.

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BrainHunter.com is by no means alone in the recruiting market.

"The online advertising job market is worth about [US]$300 million in North America and there is no sign that it will fall off any time soon," Singh said.

"Our mission is to make the connection between those seeking jobs and those who need to fill them smoother, faster and more cost effectively," Singh said. "We are using the Internet to accomplish this and we believe we have taken the process further than anyone else."

BrainHunter.com uses software developed in-house to cut down on the time it takes to hire an employee by filtering candidates by experience, expected salary and "nice to have" qualities, among other criteria.

"We've got it down to a matter of hours," Mann said.

But according to Singh, his company's service won't replace traditional recruitment practices.

"If you look at the staffing business in general, you'll see a fundamental shift towards e-staffing. But there will be room for traditional brick-and-mortar agencies for companies looking for highly personal service."

Here's how BrainHunter.com works: A candidate enters a resume at BrainHunter.com's Web site. The company matches the candidate with a suitable position. The candidate is sent a job description by email and can then choose to apply for the job or ignore it.

It's up to the employer to decide on interview arrangements, but BrainHunter.com's software includes an interview-scheduling component.

On the employer's end, a job description is entered with a profile of the perfect candidate. With its filtering software, BrainHunter.com lets the employer know when the right person for the job comes along.

BrainHunter.com licenses its software to clients looking for an in-house recruitment solution for free. BrainHunter.com gets paid when the employer hires the candidate, taking 10 per cent of the salary or a contract rate.

But once the employer and the candidate meet, BrainHunter.com is no longer part of the process. What's stopping an employer from letting the service know if a referred job seeker gets hired?

"Nothing," Mann said. "It's like a traditional consulting business. We send the candidates in there in good faith."

"You'd be amazed at the loyalty our clients have to the service."

BrainHunter.com's first office is now open in Toronto. Regional headquarters in Calgary and Ottawa should come next. The company plans to spread across Canada and the United States first, with plans to take on Europe in the coming 12 to 18 months.

But BrainHunter.com has competition in the U.S. Hire.com, an online recruitment firm south of the border that has similar filtering software.

Singh, however, says BrainHunter.com has the upper hand because its software offers significant savings for employers. BrainHunter.com's competitors, he said, keep any savings for themselves.

"We believe that we offer the most innovative recruitment system on or off the Web," Singh said. ☐

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CBC, Chapters ink online book deal

By Mitchell Brown

The Canadian Broadcasting Corp. (CBC) and Chapters have agreed to spread the word, and sell a few of them, too. In April, Chapters Online (http://www.chapters.ca) and the new media branch of the CBC (http://www.cbc.ca) announced a general agreement that would tie the two sites closer together as partners and content providers.

Under the deal, visitors to the CBC section of the Chapters site will find the latest literary news and reviews from the CBC's InfoCulture Web site, which is devoted to covering Canadian and international arts and culture. In return, all the stories on InfoCulture that mention books and authors will contain links back to the corresponding Chapters pages that will allow users to purchase the books reviewed or discussed in the CBC Online articles.

Lucie Lalumière, the director of new media partnering for CBC.ca, says the partnership was a natural fit between two companies that were each strong in their respective fields.

"We wanted an e-commerce partner, and they wanted a content partner," she said. "There had been many discussions with others in the industry, and we decided it was time to discuss a real partnership. It came through gradually over many meetings.

"We feel that we have a very strong editorial content for books, and people come to us to read about books. Now they can proceed to buy the books. It's basically an added value for our users."

She also noted that a similar arrangement made with CDPlus.com in January has been "very excellent" for both the online music retailer and the public broadcaster. She played down any suggestion that such deals between media outlets and retailers carried a danger of biased reporting.

"The partner comes to us because of our journalistic integrity," she said. "It's important to us [at the CBC] to stick to our integrity. There hasn't been any concern, and there's absolutely no relationship between the agreement and the editorial content."

Indeed, as any visitor to the CBC site can tell, its reviewers do not seem to be constrained in their opinions. A recent negative review of the Smashing *Pumpkins'* latest CD, for instance, was clearly not written to encourage people to buy the album, even though CBC viewers could do just that by clicking the direct link to CDPlus.com.

Still, this continuing convergence of reporting and selling is cause for concern to some media critics.

"Any time there is the appearance of a quid pro quo, it's a dicey case," said Vince Carlin, head of the journalism program at Ryerson Polytechnic University in Toronto. "The test is whether the review is tuned into the marketing or if there's any influence from the marketing side of things.

"It's come up quite a bit especially with the online stuff. Who is doing the review that appears? Were they independent or were the reviews written by marketers?"

While he's concerned about the implications of such deals, he says he's not surprised the CBC is involved in them.

"Their budgets have been cut, so they're forced to make some deals," he said. "But they have to look at every arrangement to see if it fits their policy."

Barrie Zwicker, a publisher and broadcaster who keeps a close eye on issues related to media ethics, is also a little skeptical about the inherent "added value" of such agreements between retailers and media outlets.

"The corporations always insist they're operating in the interests of the consumer," he said. "And undeniably, in some cases they are. But the main interest being served is that of the corporate shareholders.

"Independence and diversity are positives, in my books. This does not mean that independent players—be it in business, politics, the arts or whatever—should not form affinity groups, alliances or partnerships. But when diversity is undermined by too many alliances, than that is where the real trouble sets in. And it has set in. The question is, how far is this trend going to go?"

He noted that the deal could lead to viewers becoming wary of the CBC's objectivity in other places.

"As our major public broadcaster I'd like to see the CBC not rushing pell mell into business arrangements," he said. "Can we be as sure, after this deal is consummated, that Peter Mansbridge is giving us the straight goods on *The National* if a story involving Chapters comes up?"

—canadacomputes.com

Tapscott finds way to online mapping firm

TORONTO—Don Tapscott, whose books *The Digital Economy* and *Growing Up Digital* have served as roadmaps for businesses trying to reconnoiter the Internet, is helping people find their way around ordinary streets and highways with the official launch in early May of the startup company Maptuit Inc. (http://www.maptuit.com/)

Maptuit is targeting Internet content providers and enterprises with technology it says provides powerful map-based services with a focus on providing step-by-step directions between points in addition to the maps themselves.

"Both consumers and business people need timely and convenient access to geographically specific information, whether it's the location of the nearest bank machine or the faster route to quickly deliver perishable goods," Tapscott, who is chairman of Maptuit, said in a statement. "By tapping the power of the Internet, Maptuit opens the door for the delivery of a range ... new location-based services."

Bill Tapscott, Don's brother who serves a corporate development role with the new company, said Maptuit's "value proposition" is its ability to generate sophisticated route information that can be applied to a variety of business scenarios.

For example, he said, a delivery company could use the service to generate routes for drivers so they can do more deliveries and less path-finding during a shift. A bank could use the same technology on its Web site to help customers locate ATMs, or a cell phone company could take advantage of Maptuit's wireless application protocol (WAP) support to provide a host of location-specific services for its mobile customers.

The company said it is working with 724 Solutions Inc.—a Canadian company that has focused on wireless delivery of financial data—to develop applications that combine map-based searching and personalization. Such technology could, for example, automatically direct a business traveler to a restaurant that accepts a particular credit card, or to a nearby ATM affiliated with their bank.

Maptuit also announced that Descartes Systems Group Inc.—a Canadian company whose logistics management software is designed to plug into online business-to-business communities—will be using Maptuit's technology in its real-time delivery-tracking applications.

—Newsbytes.com

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Companies back XML specification for business

NEW YORK—A host of high-profile companies from the worlds of finance, publishing and computer software are adding some momentum for an extensible markup language (XML) specification they say will make it easier to exchange business information electronically.

The specification, called extensible business reporting language (XBRL) is a newly named incarnation of what had been called extensible financial reporting markup language (XFRML). The XBRL Project Committee that is steering the specification's development says the new name reflects the fact that it will be used for a variety of business information other than financial statements.

More than 30 companies and organizations have joined the XBRL Project Committee, including accounting firms such as Arthur Andersen and Ernst & Young, professional associations for accountants in North America and Europe, software companies such as Microsoft and Oracle and electronic publishers such as Reuters Group, Standard & Poor's and EDGAR Online.

In early April, the American Institute of Certified Public Accountants (AICPA) announced that an implementation on XBRL designed specifically for financial statements will be the committee's first product when it passes a review-and-comment procedure, expected to end in July.

"XBRL solves two significant problems for users and preparers of financial statements by providing efficient preparation and reliable extraction of financial data across all technology formats, including the Internet," said Robert Elliot, chairman of the AICPA. "Costs to implement XBRL will be minimal for CPA firms and their clients since it will be built into software technology and operating procedures, allowing increased flexibility to prepare and extract statements according to the accounting principles of different geographies and jurisdictions."

> XBRL solves two significant problems for users and preparers of financial statements by providing efficient preparation and reliable extraction of financial data across all technology formats, including the Internet.
>
> *—Robert Elliot, AICPA*

The XML specification, which is itself a streamlined implementation of the massive standard generalized markup language (SGML), provides a relatively simple approach to labeling the contents of electronic documents in a way that identifies the nature of each element. To be useful, however, organizations intending to exchange information have to agree to mark up their documents using a commonly named set of XML tags, which they devise.

The AICPA spearheaded the original development of XFRML. Much of that work will appear in the first XBRL implementation, to be known as XBRL for Financial Statements. On tap will be XBRL products for marking up information prepared for securities regulators, tax filings, and such business missives as press releases.

The AICPA said a benefit of XBRL is that once business information is marked up using its tags, the same data can be rendered in many forms—as a printed financial statement, an Web document, or a regulatory filing for the U.S. Securities and Exchange Commission.

Said Barry Melancon, president and chief executive officer of AICPA, "XBRL provides an efficient and reliable means of information exchange without changing existing accounting standards. And, because it is based upon standardized underlying data tags, XBRL does not require a company to disclose any additional information beyond that which it normally discloses in its current financial statements."

Microsoft's Christy Reichhelm said her company has joined the XBRL Project Committee in preparation for integrating the standard with a variety of products from the Redmond, Wash., software company.

"All our existing and future operating systems, development tools, applications and software, such as Windows 2000, Windows DNA 2000, BizTalk server and Microsoft SQL Server incorporate XML," she said. "and we will continue to support and promote XML-based industry initiatives such as XBRL."

Information on XBRL can be found online at the AICPA-hosted site http://www.xfrml.org/

—Newsbytes

DVD and MP3 a-go-go

Continued from page 91

edged as a CD player. However, since most MP3 players also handle CDs, this is a non issue.

In the meantime, the lack of reliable DVD playback is a serious flaw, and I'm surprised X10 could let something with a large glitch like that out the door. Once the bugs are ironed out, DVD Anywhere could be a nice solution for people who want to watch movies from any TV in the house. MP3 Anywhere certainly indicates that when it does work, it will continue X10's tradition of cheap, fast, and easy remote control. Until then, DVD Anywhere is nothing but a serious misnomer. ❑

Emru Townsend (emru@pobox.com) still has too much music and too many movies.

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Intel's Maloney tells Internet World audience to get real

LOS ANGELES—For Sean Maloney, senior vice-president and director of worldwide sales and marketing for Intel Corp., the commercial exploitation of the Internet in recent years resembled a game show he calls "Who Wants To Be A Billionaire?" But despite the glitz and hype, the results haven't been as real as anticipated.

Maloney spoke about where the Internet has been and where he thinks it's going during a keynote address at Spring Internet World 2000, held in Los Angeles in early April.

Even though everyone knows of barely post-pubescent kids who have become Internet millionaires virtually overnight, not every first mover has been successful on the Internet, Maloney said. However, he said, every successful Internet company until now has been a first mover. For Maloney, a "first mover" is a company that takes the risk in developing an untried business model, spends the required initial investment, and takes the business online.

Before 1994, Maloney said, corporate life was dominated by the quest for profits; the bottom-line was all-important.

However, within the last two years, e-commerce companies have been taking their focus from present profitability to a "land grab" approach, the grabbing of consumers to a Web site.

But the Internet is now entering what Maloney calls a "New Real Economy," an economy that is seeing a rapid return to focusing on the costs of operations as well as costs of investment. It is also an economy in which there is very little forgiveness and no slack—no slack in margins, no slack in inventory and no slack in time.

The reason for that is the Internet has provided consumers, as well as competitors, with better knowledge of products and prices, he said. This, in turn, has required online businesses to trim all possible slack from their operations in order to preserve profit margins.

According to Maloney, speed and beating customer expectations are essential to success on the Net. Just meeting expectations is no longer good enough for an e-business.

Maloney sees the Internet-economy becoming one of new efficiency metrics. He said a few recent developments are helping to build an Internet infrastructure that is cost efficient.

"Speed is of the essence" in the new Internet economy, Maloney says, but "the promise of bandwidth is always one year away." So, even though North America is ahead of the rest of the world in high-speed capability, there is a trend to move data, particularly vast amounts of data, towards the edge of the Internet.

> Even though everyone knows of barely post-pubescent kids who have become Internet millionaires virtually overnight, not every first mover has been successful on the Internet.
>
> *—Sean Maloney, Intel*

Maloney explains that by moving data to the edge of the Internet, a consumer in Asia who wishes to download information from a Web site with a server in San Francisco, will not receive that data after it has gone through 18 different switches on its one-way journey. Instead, "serves farms" consisting of large numbers of optic

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servers on the same network as the client that will contain the bulk of the data in many Web sites thereby cutting the time and freeing up the bandwidth, for the delivery of that information

The next generation of the Internet will integrate the Web into everyone's lives, not just at work, but at home. And, this integration will be accomplished wirelessly.

To establish this point, Maloney then demonstrated a series of products using Intel processors that will reach the market in the third and fourth quarters of 2000

Part of Maloney's presentation was one of the first public demonstrations of Bluetooth technology which allows digital devices in close proximity to each other to communicate wirelessly

Maloney said that the Internet would lose its cable and wires as technology and consumers expectations drive the "cutting of the cord."

At home, there will be Internet access in every room with various devices being connected through just one PC regardless of where in the house they are located or moved, he said.

Computers of the future will also be smaller, as more and more applications will reside on the Net, thereby reducing the need for desktop storage of applications, as well as the size of desktop PCs.

Several of these smaller, more stylish PCs were "modeled" during Maloney's presentation and not only were they smaller they came in a colorful boxes that appeared to have been designed by an architectural-artist and not, to use Maloney's word, a "geek."

Maloney's final message, like the Internet-enabled life he envisioned, was simple "Get ready to get real," he said

—*Newsbytes*

Terran Trek e-zine

NB—This site is an e-zine for the Terran Trek community and includes interviews and appearances by the actors in the various *Star Trek* series including *Voyager*. It includes a holodeck simulation viewable with a Viscape plug-in, links to news from around the world, and a hotlink to the cold-as-space New South Polar Times.

http://www.compu-web.com/msgboard.mv

Stormy the Dolphin makes a comeback

NB—Stormy is a dolphin with at least two if not nine lives. He was injured in a shark attack, separated from his mother and washed up on the shore in Texas, barely alive. Fortunately he was rushed to intensive care at the Texas Marine Mammal Stranding Network in Galveston. He has been transferred to Mystic, Conn.'s aquarium where, after constant care, he is now swimming and eating on his own, has become the inspiration for a children's book and the subject of the "Stormycam."

http://www.mysticaquarium.org/stormy/index.cfm

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IBM's Patrick dreams, Internet World audience listens

LOS ANGELES—John Patrick describes himself best. "I am vice-president of Internet technology of IBM Corporation," he says. "My job is chief technology officer for IBM's Internet activities. Some people call me the strategist, some call me a visionary, and some call me chief dreamer."

To the hundreds of people who packed the main auditorium of the Los Angeles Convention Center to hear him give the first keynote address at Internet World Spring 2000, in early April, he was all three, as he spoke about his vision of the future of the Internet.

For Patrick, the future of the Internet had only just begun, and he made this point by reminding the assembled Internet-savvy executives and consumers that the percentage of the world's population that is online at any given time is virtually zero.

We are, Patrick said, only at the beginning of transferring power from institutions to the people, who are themselves just beginning to appreciate the "power of the click."

For Patrick, the future of the Internet can be summed up in eight words. It will be fast, always on, everywhere, natural, easy, intelligent, and trusted.

> My job is chief technology officer for IBM's Internet activities. Some people call me the strategist, some call me a visionary, and some call me chief dreamer.
>
> *—John Patrick, IBM*

"Fast" refers to bandwidth, which Patrick sees as becoming plentiful as competition between cable and telephone companies intensifies and the difference in services being provided by each disappears. In fact, Patrick sees the bottleneck of Internet access shifting from the modem to the server, as the capabilities of ISPs (Internet service providers) are unable to cope with the demand for increased Internet usage that's been fueled by the advantages offered by greater bandwidth.

"Always on" means that since consumers will no longer have to dial up to get access to the Internet since the connection is always open, consumers will begin to do things online that they don't do now.

The Internet of the future will be the archive for all kinds of services, such as weather and traffic reports, which users will access quite routinely, since the connection is always open.

Patrick says the change in Internet behavior will be similar to the change people experienced when they no longer had to ring up an operator to place a telephone call.

"Everywhere" is another key element of Patrick's future Internet. Today, 98 percent of online content is viewed through the PC. But as Web-enabled devices begin to flood the marketplace, Patrick says he expects that number to decrease to 50 percent in two years.

Some of the new Internet-capable devices will be the television, pager, PDA (personal digital assistant), telephone, strategically placed public kiosks, and Internet-based radio. Patrick calls these Internet-enabled devices "information appliances," and he cites what is presently happening in Europe as an example of how these devices can change the lifestyles of a population.

Historically, Internet usage, to say nothing of e-commerce, in Europe did not enjoy the same degree of acceptance and participation as it did in North America. However, with the advent of Web-enabled telephones, and their popularity in Europe, Patrick sees Europe "leapfrogging" over the United States within a year in Internet usage, due primarily to the use of the wireless telephone as a Web browser.

Patrick's Internet of the future will become more natural as instant messaging coupled with voice recognition, text-to-speech conversion and real-time translations all combine to make the Internet a "multilingual intercom."

The convergence of these technologies is "game-changing," Patrick said.

A further refining of portals will make the Internet more intelligent. Instead of a predominance of all-purpose portals, much like those that presently exist, there will be specialized portals where people who share a common interest or profession can congregate. There will also be lifestyle portals, and portals for people in different kinds of demographic groups.

A major aspect of the new Internet will be its ease of use. Open architecture, shared source

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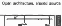

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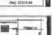

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codes and, for Patrick, the development and enhancement of Linux, will make accessing Internet content much easier

Patrick makes no bones about his feelings for Linux, which he also calls a game-changer. Linux is not Patrick said based 90 percent on a cult following and 10 percent on discipline—a claim some critics have expressed. Rather, he would reverse the percentages. "Linux," he said, "levels the playing field."

And, to show his audience that he knows of what he speaks Patrick reminded everyone that, "Only the greatest sinners know how to really repent."

For the "trust" component of the Internet of the future, Patrick says that we need to develop a digital ID for everyone which will be able to authenticate as well as receive authorization. This will allow for the confidence that a transaction cannot be repudiated by saying that it was unauthorized.

According to Patrick digital identification is not something to be feared but something that should be "embraced." Not to be embraced would be government regulation except that Patrick noted that some legislative assistance was necessary to make a digital signature as valid as a "few drops of ink on paper."

As for an overall view Patrick said that the next generation Internet will host millions of new businesses. But he warned, some of these new businesses would fail and so they should because they are not all created equal.

Patrick believes that consumers are not being listened to enough by businesses that transact commerce online, but that that will change as the business relationship transforms from being essentially people- to-server to server-to-server.

He closed his remarks with four thoughts for e-retailers. He told his audience to "think outside in" for that was where the people are. He said that we should "think big," but start simple and grow fast. Patrick advised the building of a framework and design for scalability, so that we won't be the victim of our own success. And finally Patrick told his audience to "get a taste of Internet culture." Anyone who did not know what that meant, he said, should get their Web site approved by a 10-year old to see if it made any sense.

—Newsbytes

Sun's chief scientist warns of dangers of nanotechnology

ARLINGTON Va.—Bill Joy has drawn a line on what he is willing to contribute to the future of technology "I won't work on nanotechnology" said Sun Microsystems Inc a chief scientist who has been a major contributor to Unix and co-authored Java.

Joy was on the lecture circuit in early May with a cautionary message of the dangers of unchecked technology One of his talks cosponsored by the Defense Advanced Research Projects Agency at the Arlington, Va., was at the headquarters of the U.S. National Science Foundation

Joy stirred controversy with an article earlier that year in *Wired* magazine in which he warned that advances in computing genetics and nanotechnology could result in the creation of species of intelligent self-replicating and evolving robots that could out-compete humans.

In his speech in early May Joy said this could pose a greater threat to the human race than nuclear weapons and he suggested limiting some research because certain things are too dangerous

U.S President Clinton has proposed spending US$274 million in fiscal 2001 to support nanotechnology research which is technology on a scale of less than one micron (a micron is one-millionth of a meter a nanometer is one billionth of a meter)

Joy said although nanotechnology promises great benefits nanotechnologists are ignoring its dangers. He said he is interested in working on highly reliable systems which he said offer more promise as defensive and protective technology and less risk of danger

—Newsbytes

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Ericsson intros pen and paper interface technology

STOCKHOLM, Sweden—Thanks to Ericsson's new Anoto technology, it will soon be possible for any able-bodied person to use a computer, no matter how Luddite their approach.

The Swedish telecommunications firm has announced it is working on a new "pen-and-paper" interface technology called Anoto. The firm says that the technology will revolutionize computer access techniques, especially among current classes of non-computer users.

The Anoto system will not be limited to plain old computers. The company says it can also be used for "driving" mobile phones, PDAs (personal digital assistants), and surfing the Net.

The technology, which was co-developed with Time Manager, is based around a "piece of paper" with a proprietary printed pattern. Users then "write" on the paper using an Anoto pen, which transmits coordinate information across the Web to the Anoto Web server.

The Anoto has a digital camera and an infrared scanner close to the point of the pen. Combined, these technologies take continuous snapshots of the paper the user is writing on, transmitting them to the Net using a Bluetooth connection to a mobile phone, PC or similar interface technology.

Anoto pen

The resultant data can then be interpreted in many different ways, Ericsson says, allowing the writer to effectively "drive" a variety of computer or similar interface technologies.

Plans call for the first Anoto pens and associated technologies to ship in about one year.

Ericsson says that flexibility of using an Anoto pen over other interface technologies is such that consumers can store their written scribbles or send graphical email and also electronically order products with just pen and paper.

Thanks to this, the firm says that the time-consuming task of reentering notes made on notepads into a digital environment will soon be history.

The Anoto technology has been developed by Anoto, a subsidiary of C-Technologies, a joint venture Ericsson has a stake in with Time Manager. Ericsson says it is providing its Bluetooth wireless technology and mobile telephones, while Time Manager has developed the first paper product based on the Anoto pattern.

Christer Fåhraeus, Anoto's president, said that the firm's goal is to create a standard for digital pen and paper. "In our view this new technology might have a similar penetration to that of mobile phones in less than five years," he said.

"The challenge is to create a partnership structure where everyone is a winner and the end-consumer is the biggest winner," he added.

Anoto/C-Pen's Web sites are at http://www.cpen.com and http://www.anoto.com

—*Newsbytes*

GoYogi does India

NB—GoYogi.com is a portal for those from or interested in all things India, and it now features the Google search engine to track down resources and Web sites of interest. GoYogi.com also features real time Bombay Stock Exchange quotes, worldwide cricket coverage and news on India and global events. Organizers say the site contains "the world's largest human-built directory of Indian-related content." Also online are *Chandamama*, a popular Indian children's magazine and personalized Vedic astrology reports.

http://www.goyogi.com

Self-help surfing

NB—A new Web site combining both personal and professional development adds a multimedia angle to individual and organizational self-help. Built on motivational musings from the likes of noted hand-holder Wayne W. Dyer (author of *Pulling Your Own Strings* and *Your Erroneous Zones*) and futurist Peter Russell (*The Brain Book*, and *The Global Brain Awakens*), Ethoschannel.com serves up its wisdom in both text and video.

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- GA-GF2560 " Recommended Hardware Prize" **By Planet Geforce April 2000**
- GA-6VX7-4X "Bronze Award" **By Hardware Info April 2000**
- GA-6CX "TEST WINNER" Italy **By Chip Magazine April 2000**
- GA-GF2560 "Recommended" **By SharkExtreme April 2000**
- GA-BX2000+ "BEST OF TECH-Empfehlungen" Germany **By PC Direkt Magazine April 2000**
- GA-6CX, "Performance "UK **By PC Plus Magazine April 2000**
- 6VX-4X, "Best Choice" **By PC Net March 2000**
- GA-7IX, "Editor's Choice" UK **By Personal Computer World March 2000**
- GA-6CXC, "Recommended" **By Active Hardware March 2000**
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Mail merge magic

Most people will eventually have occasion to send a letter to more than one person at a time. It might be an invitation to a birthday party, a club announcement or a letter to customers. Whatever the reason, your word processor's mail merge tool is there to help with the task.

If you're tempted to bypass mail merge and create a separate letter for each person, you'll soon realize what a cumbersome process it is. In addition, if you need to repeat the task in the future, you'll have to repeat the process of creating individual letters.

An easier way is to use mail merge which simplifies the task of sending the same letter to a number of different customers, club members, friends, or family. Mail merge involves creating two documents, the first is the letter or invitation itself, the second document contains the names and addresses of the recipients. If you have one, you can use an existing contact list—an address book or list of contacts you keep in another program, such as Outlook—for this second document.

Once you have your letter and list, you have to link the two documents. In this way you identify each piece of information in your list of names and addresses that you want to use and you specify where each piece of information will appear in your letter.

To complete the process, your word processor merges the list of names and addresses with the letter and creates individual letters for each person on your list. You can then print, email or fax the letters. And anytime you need to repeat the process, you simply create another letter or alter the existing one, then run the merge again. Very quick and easy.

There are many ways to perform a mail merge and you can do it even if you don't have a list of contacts or customers. In Word 97/2000 you can create a list and process a mail merge from inside the program itself. I'll show you how this is done, then show you how to use your Outlook contacts or Excel data instead of creating a new list.

Creating the address list

Begin in Word, by creating a new document using File, then New, or by opening the file containing a prepared letter you want to send to members of a group. Choose Tools, Mail Merge, select Create, Form Letters, then Active Window.

You'll be put back in the Mail Merge Helper dialogue. Choose the Get Data button, then pick Create Data Source to create your name and address list. In the Create Data Source dialogue, a number of fields have already been created for you. Scroll through them, remove any fields you don't want by clicking on the field name, then clicking Remove Field Name. To add a new field, type its name in the Field name box and click Add Field Name. When you have all the fields you need, click OK, type a name for your address list, then click Save.

From the dialogue of options that appear on the screen, choose Edit Data Source and type the details of the first person in your list. Click Add New and continue entering details for each person until you are finished, then click OK.

Creating the merge letter

You'll now be returned to your document. If you already had a letter open you'll see this. If not, you'll have a blank document so you'll need to type in the text of the letter or message you want to send. Leave the areas in which you'll be inserting data from your customer list blank.

To add the merge fields that will link the name and address data to this letter, position the insertion point where the first field will appear. Click the Insert Merge Field button on the Merge toolbar and from the drop-down list, select the merge field you want to insert. Repeat this for each piece of data you want in your letter. Typically you'll add Title, FirstName, and LastName on one line; Address1 on a second line; and then City, Province, and PostalCode on the last line to create the address details.

To see how the data will look when merged, click the View Merged Data button on the Merge Toolbar, then click the Next Record but

Continued on page 105

The Visual Basic Tutorials, Part 11

Visual Basic for Applications

By Jacques Surveyer

Visual Basic for Applications (VBA) is slowly becoming the macro language for Windows. Slowly, because unlike CShell in Unix, Rexx in OS/2, or .bat files in DOS and Netware, VBA does not come with Windows. Rather, software vendors have to pay a licensing fee to add VBA capabilities to their products—so AutoDesk, Corel, Visio and 147 others pay a fee (up to $30 per copy) to include VBA macro capabilities in their programs.

In addition, there have been technical factors slowing the acceptance of VBA. Microsoft really had four editions of the language, which varied more than slightly between the Word, Excel, PowerPoint, and standard VBA editions. This has been somewhat rectified with Office 97, Office 2000 and Visual Studio 6 (see the upcoming VB Tutorial 12 for details).

Finally, VBA macros have been used by hackers as an infecting agent for their viruses like the infamous Melissa Virus that spread like wildfire through Outlook and Word in the spring and summer of 1999. Again, Microsoft has moved to partially close the door by assigning user approval as a default behavior for macros, which must also be signed/authenticated to run (we shall also look at this in a later tutorial). This allows organizations to control, in a password-like system, what macros are allowed to be used on their networks.

Despite these financial constraints and technical impediments, VBA has continued to garner interest. The reason for that is simple. VBA allows users to draw upon the vast functionality of Office 2000, Corel Office 2000, AutoDesk AutoCAD, Micrografx Flowcharter, Peachtree Accounting, SAP ERP (enterprise resource planning), and dozens of other programs through VBA macros and add-ins while developing their own applications. This means major chunks of code do not have to be developed. Instead developers can directly use Excel's charting routines or Word's formatting capabilities. With speed of development being a critical factor in so many systems, many organizations are trying to leverage more from their existing software assets. VBA allows them to develop with Corel, Microsoft, Visio and other commercial software as part of their software team.

VBA a direct subset of VB

Fig. 1 shows VBA from Word. As you can see, it looks a lot like Visual Basic. In part, VBA is a direct subset of VB. All the tools and command syntax of VBA work in VB.

However, there are distinct differences. Each application program that VBA is adapted to brings its own distinctive semantics. For

Continued on page 110

Linux for Newbies–Part 11

Regular expressions

By Gene Wilburn

In this beginner's series, based on Red Hat Linux 6.0, we've progressed through a set of building blocks designed to make you more comfortable with your new Linux environment. In the last installment we explored the various ways to locate things on a GNU/Linux system. Some of the examples in the installment used wildcards familiar to most Windows, OS/2 and DOS users, such as *.html to match all files that end in .html.

In this installment we'll take wildcards and their ilk to another level. Linux programs and utilities normally provide a feature called regular expressions, a mild sounding term for something that is rich in scope and deep in applicability. Regular expressions—often shortened to "regex" or "regexp"—provide powerful pattern matching and text manipulation capabilities.

Regular expressions are integrated into grep, Perl, Tcl, awk, Python, vi, Emacs, sed and Expect, to name a few popular Unix programs that use them. Regex's are also included in several Windows programming products, including Delphi and Visual C++. The reason for the popularity of regular expressions is that they provide a logical tool for manipulating text and data. They can make complex tasks simple. Learning how to formulate regular expressions is an important step on the way to becoming a Linux power user.

Simple regular expressions

Let's start with some simple examples and work our way up. As you know by now, Linux is a case sensitive operating system. This means that index.html and index.Html are two completely different files.

Let's say you've transferred some HTML files from a Windows environment to a Linux based Apache server. Due to eccentricities of Windows operating systems, you may have a mixed bag of upper and lower case file names when the files arrive. Furthermore, you may have some files on your Web site that end in .html and some that end in .htm because some of the pages were created with Windows products that retrofit filenames back to DOS 8.3 limitations.

So let's assume that initially, you're looking for a transferred file called default.htm, except that it might be Default.htm. To do a listing that would catch either variant of the filename, you can type the following:

```
$ ls -l [Dd]efault.htm
```

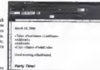
The [Dd] is a Unix-style wildcard meaning that for the first character in the filename match any character in this character set

Continued on page 108

Mail merge magic

Continued from page 104

ton to move through the data and check that it is OK. To make changes, click View Merged Data and alter your spacing or placement, then recheck the results. When your merge letter is complete, choose Tools, then Mail Merge to return to the Mail Merge Helper



March 19, 2000

«Title» «FirstName» «LastName»
«Address1»
«Address2»
«City» «State» «PostalCode»

Good morning «FirstName»

Party Time!

You'll need fields for a person's name and address for a letter and make sure you add spaces so the data doesn't run together.

Running the merge

To run the merge, choose Merge, then from the Merge To list box, choose New Document to send the merge to a new Word document. Select the Don't Print Blank Lines When Data Fields Are Empty option so that empty fields won't print as blank lines. Click Merge to merge the list with the letter

Your merged document will appear on the screen with one copy of the letter for each person in your list. You can check them, then print right away, or save to print later.

Before you finish, close your merge letter and, when prompted, save it so you have it for the future. Then you can run the merge again simply by opening the letter and choosing Tools, Mail Merge then Merge. In addition, you'll be prompted to save changes to your data file. You won't have saved this since you first created it and in the meantime, you'll have typed all the names and addresses into it. So, you should answer Yes when prompted to save the file or you'll lose all your work.

Using Outlook contacts

If you have contacts in Outlook, you can use the contact details as the data for your mail merge if you copy them to a new contact folder and use it for the merge. To do this, in Outlook, choose File, New, then Folder to create a new folder for your contact details. In the Name field type a name for your folder (we'll use the name GuestList) From the Folder Contains list select Contact Items, then pick a location for the new folder and click OK. Select No when prompted to add a Shortcut to this folder from your toolbar unless you would find this useful

If you already have contacts in Outlook that you want to include in this list copy them to your new folder (GuestList) by opening the folder containing the contacts and holding the Control key as you select the contacts to copy Then drag and drop them onto the GuestList folder Be careful, if you don't hold the Control key as you drag the contact names, you will move them rather than just copy them.

You can add additional people to your list by selecting the GuestList folder, then picking File, New, and Contact. Complete the details for each new contact and select Save And Close to finish. This process of building your contact file will be complete when your folder contains the details for all the recipients of the letter.

To set up your new folder as an email address book, right click on the GuestList folder select Properties and the Outlook Address Book tab. Select the Show This Folder As An E-mail Address Book checkbox, select Apply then OK. Now your list is complete and you are ready to create your mail merge document.

Creating the merge document

Return to Word and begin by choosing File, New, or by opening the file containing your prepared letter Select Tools, Mail Merge then Create Choose Form Letters then select Active Window

From the Mail Merge Helper dialogue, select the Get Data button and choose Outlook Address Book. From the dialogue, select the GuestList folder and click OK Now you can follow the previous instructions for creating and merging the letter

Email merge

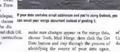
If you wish, you can merge direct to Outlook and email letters rather than posting them. To do this, choose Merge from the Mail Merge Helper dialogue, then Electronic Mail from the Merge To dropdown list. Click Setup, and from the Data Field With Mail/Fax Address dropdown list, select the field in the list that contains each recipient's email address. In the case of the GuestList folder, the field—at the bottom of the dropdown list—is Email_Address.

In the Mail Message Subject Line area, type the subject of the message and deselect the Send Document As An Attachment checkbox. Click OK to return to the Merge dialogue It is better to send the text of the letter in the body of the email message rather than as an attachment because it would require that all of the recipients have a copy of Word (or whatever word processor you used to create the letter) installed on their computer to be able to view the letter

To run the email merge, click the Merge button in the Merge dialogue. Now switch to Outlook to check the messages, which will appear in your Outbox. It's a good idea to check a few messages at random to ensure the merge has worked correctly before you select Send.

A note about changes

New contacts or changes to contacts after you have nominated your GuestList folder as the source of data for your merge won't be reflected in the merge without the following steps. To make sure changes appear in the merge data, choose Tools, Mail Merge, then click the Get Data button and step through the process of identifying the source of your data again. When you do this, Word will read the contents of the folder and any new or changed information will appear in your merge data.



If your data contains email addresses and you're using Outlook, you can email your merge document instead of posting it.

Saving the merge file

If you save your merge letter you can use it anytime in the future for an email merge. When you open your file again to use it, you'll be prompted to select the Address Book to use for the merge and, at this time, any changed information will be read from the file. The remainder of the settings you have chosen for your merge will remain as they are.

Limiting recipients

If you're using an existing data source for your mail merge you may have more people on your list than you actually want to send the mail merge letter to. You can select only those people you want to send the letter to by using a Query To do this, with the merge message on screen, choose Tools, Mail Merge click Query Options, then from the dialogue select the Field to base the query on and the conditions for the match. The following is a query example with select only those contacts with BC entered in the State or Province field

Field: State or Province
Comparison: Equal To
Compare to: BC

You can use AND and OR to widen or narrow your filter When you click Merge, *only* the data for people in your list with entries that match the filter conditions will be merged with your letter

Other programs

Of course you're not limited to using Word to create a mail merge. WordPerfect and Word Pro both offer mail merge functionality similar to Word. In addition, if your customer details are stored in a contact management program you can probably create a mail merge from within that program using its built-in word processor Check your contact management program's manual or Help feature to find what functions it offers.

If your data is in an Excel list you can also use this as a data source for mail merge However there are some known problems with this and you're well advised to make sure your data is in the first sheet of your workbook and that it begins in Row 1 Column A with headings across Row 1 and the data in the rows below it.

To specify the Excel file as your data source in the Mail Merge Helper dialogue, choose Get Data, Open Data Source Then from the Open Data Source dialogue's Files Of Type dropdown list, choose MS Excel Worksheets (*.xls), locate the Excel file, then click Open. When you see the Excel dialogue prompting you for a Named Or Cell Range choose the Entire Spreadsheet option and click OK ❑

Helen Bradley specializes in writing hands-on tutorials. Her columns appear regularly in a number of publications in Australia, Canada, the U.S. and U.K. Contact Helen at helen@helenbradley.com.

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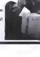

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Regular expressions
Continued from page 104

(delimited by brackets). It will find both Default.htm and default.htm.

Now let's assume you're in a large HTML directory where you suspect you have a mix of .htm and .html files residing and you would like to see what they are. Listing these files, and only these, is not as simple as the previous example. Using wildcards, you could type:

```
$ ls *.htm*
Temp.html    temp.htm    temp.html.bak
temp.html~
```

But as you can see, this includes backup files as well. Not only that, it didn't catch any imported files that end in .HTM (upper case). If, instead of wildcarding the ls command, we pipe the ls output through egrep (a member of the grep family), we can set up a regular expression that will limit what is displayed to just source Web pages and no backup files. Here's one way of doing it:

```
$ ls * | egrep -i ".html?$"
TEMP2.HTM
Temp.html
temp.htm
```

This gives us exactly what we wanted, so let's examine this command more closely to see what it's doing. First we ran ls against every thing, with the wildcard * (asterisk). We piped the output of ls to egrep. In the grep family, regular expression support comes in two levels: basic and extended. Grep supports basic regex, while egrep supports extended regex, which we required for this example.

We ran egrep with the -i flag, meaning ignore case, allowing us to match on both upper- and lower-case filenames. Then we come to the pattern itself. The .htm part of the pattern matches anything that contains htm (ignoring case). This is followed by l?. In regex speak a ? (question mark) is a special character, meaning match the preceding character zero or one time. In other words the match is optional. By this logic filenames with both htm and html qualify.

If we had stopped there we would have once again listed all the backup files, so we needed one additional piece of logic: the $ (dollar sign). The $ is a special character signifying the location at end of a line or string. It's called an anchor character. Its opposite, for the location at the beginning of line or string, is the ^ (caret symbol). Hence, the simple pattern ".html?$ actually contains a neat bit of logic embedded into the pattern. It gives a pattern match with an optional character, but adds that the pattern must match at the end of the line. Hence a file such as temp.html.bak does not qualify because the html part of its filename is not at the end of the string.

Regular expression metacharacters

Regular expressions use a fairly standardized set of metacharacters that work from one program to another. They're worth memorizing because they come in handy over and over. Once you learn them, you can move on to advanced regular expressions.

Unfortunately there are a few minor variations in regex symbols from program to program but the above expressions work in most Linux tools. Grep supports the basic regex characters while egrep supports the extended symbols (see Table 1).

The variations of regular expressions are documented in *Mastering Regular Expressions*, by Jeffrey E.F. Friedl (published by O'Reilly & Associates, ISBN: 1 56592 257 3, $42.95). This book is a masterpiece—one I would highly recommend for your technical library, especially if you write Perl scripts.

Practicing regular expressions

The best way to get started learning regular expressions is to use grep and egrep to poke through text files. Because the greps are read only, you can do no inadvertent damage, allowing you to experiment at will.

A typical use for the greps is fishing for patterns in log files. I'll demonstrate with an example from my home Linux gateway server that connects me to the Internet.

Because I have cable access to the Internet, I like to monitor for unauthorized access attempts on my server. I can use a simple grep to scan for the word "refused" in /var/log/secure:

```
# grep refused /var/log/secure
Apr 10 18:40:14 cr123456-a in.telnetd[24748]:
refused connect from cr654321-
a.wldfe1.on.wave.home.com
```

As you can see, one of my network neighbours attempted to telnet into my system. I don't have telnet running, but the system logged the attempt. (In the interests of security, I've altered both hostnames in this real example.)

This kind of grep is simple and requires no regular expressions. Now let's move on to an example that employs a regex. I have all my "Linux for Newbies" columns in the directory ~/docs/linux/newbies. Using egrep I can find out how many lines, in all the columns to date, contain the word the. At the same time, I don't want to match on words like theatre or them or these, but I do want to include any instances of The that might start a sentence.

First I'll create the following expression and test it visually:

```
$ egrep "\<[Tt]he\>" ~/docs/linux/newbies/newb*.txt

newb011.txt:The best way to get started learning regu-
lar expressions newb011.txt:A typical use for the greps
is fishing
```

I then pipe the results through wc to get a line count:

```
$ egrep "\<[Tt]he\>" ~/docs/linux/newbies/newb*.txt |
wc -l    868
```

If I changed the expression to [Tt]h.n looking for then, than, or thin, I would also snag words like something. By adding word anchors, I narrow the scope of the expression to the word I'm after: \<[Th].n\>

Regular expressions in scripts

While regular expressions are extremely handy to run right from the command line for one-off searches, they're even more useful inside programs and scripts. In a previous column we used the df command to check on disk usage

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On one of my home Linux servers, a df returns the following:

```
$ df -h
Filesystem   Size  Used  Avail  Capacity Mounted on
/dev/hda4    701M  112M  553M   17%  /
/dev/hda1    79M   1 1M  73M    1%   /boot
/dev/hdb2    1 6G  516M  1 0G   32%  /home
/dev/hda3    97M   10K   92M    0%   /tmp
/dev/hdb1    1 3G  843M  404M   68%  /usr
```

All operating systems get cranky if you run out of disk space, so you may want to create a system script that watches for a certain threshold of capacity and warns you that disk usage has gone beyond this.

I'll use awk and regular expressions to build a watchdog script. Awk, the predecessor of Perl, is a useful scripting tool. What awk does, by default, is parse lines into fields. Hence in the df -h example the output breaks down into six fields, separated by white space. In awk, those fields can be referenced by the symbols $1, $2, $3, $4, $5 and $6

To show how this works you can type the following on the command line:

```
$ df -h | awk {print $5 "\t" $1}
Capacity    Filesystem
17%    /dev/hda4
1%     /dev/hda1
32%    /dev/hdb2
0%     /dev/hda3
68%    /dev/hdb1
```

Don't worry about the awk syntax for now. We'll touch on that in a later column. Notice how we used awk to rearrange the output. Now let's add a regular expression that matches anything 50 percent or greater:

```
$ df -h | awk '$5 ~ "[5-9] %" {print $5 "\t" $1}
'68%    /dev/hdb1
```

The ~ (tilde symbol) in awk means match a regular expression. What we're saying on this line is that if field $5 (Capacity) matches any number beginning with 5 through 9 and contains any other character followed by a % (percent sign), then print field 5, print a tab, and print field 1.

If we wanted only to scan for file systems that were 80 percent or more full, we'd change [5-9] to [8-9].

What this logic would not pick up, however, is any file system that is 100 percent full. To get that we need to add another piece to the expression.

```
$5 ~ "[5-9] %" || $5 == "100%"
```

The || (double pipe) symbols mean "or" in awk and the == (double equal) signs mean "equals."

Once this works to your satisfaction and you've tested it at the command line, you write the command to a file and turn it into a script. Call it dfcheck and add it to /usr/local/bin. Remember to chmod the script to an executable:

```
# chmod a+x /usr/local/bin/dfcheck
```

You, as root, could now create another script, based on dfcheck, called something like dfcheck.daily and put it into your /etc/cron.daily directory. You can have it email the results to you on a daily basis. The new script is a one-liner:

```
/usr/local/bin/dfcheck | mail -s "Daily disk usage check"
me@somewhere
```

Change me@somewhere to a real email address.

That's a quick introduction to regular expressions, and an even quicker introduction to script writing. Regex formulation is a useful, enabling skill. The more adept you become at creating regex patterns, the more confident you become at writing scripts and Perl programs.

I will admit, though, that it's difficult to explain to family and non-computing friends that you're studying "regular expressions." Get used to the odd looks you'll get every time you mention it. ❑

Next time: Building a Linux home network.

Gene Wilburn (gwilburn@home.com) is a Toronto-based IT manager, musician and writer who operates a small farm of Linux servers. Back issues of this series are available on his Web site at:
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Visual Basic for Applications

Continued from page 104

example, VBA in Microsoft Word uses Documents and Pages as in Sub Document_Open(). VBA in Microsoft Excel uses Workbooks and Sheets as in Sub Workbook_NewSheet(), and VBA in PowerPoint uses Presentations and Slides as in Sub Presentation_Close(). So your task will be to apply the familiar syntax to the process of writing VBA code—as you will with the following:

- *Integer, Long, Single, Double, Booleans, String, Object, Variant,* and other VB data types;
- *Dim, Public,* Private declaration of variables arrays, subroutines, and procedures;
- *if ... then, elseif, end if; select case, case, end select; goto, on error* and other flow of control commands;
- *for next; do while ... loop; do ... while loop* and other iteration and looping commands;
- *MsgBox, Format(), Mid$(), Left$(), IsNumeric()* and hundreds of other already familiar VB functions;
- *Caption, Text, AddItem, Screen, Visible* and hundreds of familiar objects, properties, methods, and events.

Helping you will be many of the tools, dialogues windows and wizards that you have used in our previous VB Tutorials. For example, VBA uses the following VB tools:

For visual layout and design:

- Toolbox of active components to drag and drop on your form.
- Project Explorer to help navigate among forms, modules, and other source code.
- Property Sheet to change the properties of any object/control used on your form(s).
- Object Browser to help identify predefined classes and collections which is indispensable in VBA.

For source code editing:

- Code Editor for automatic line-by-line syntax checking.
- Fancy Formatter in the Code Editor, which auto-colors code, auto indents and inserts spaces.
- Intellisense technology for completing object names and filling in subroutine/function parameters.

For running and debugging your code:

- Immediate Window allows printing intermediate results.
- Watch window shows preselected variables and any changes in their values.
- Breakpoints in the Code Editor allow you to step through your code and inspect variable values by using mouse hover hints to reveal a variable's value, printing and/or reassigning the variable in the immediate window; and adding and changing variables in the Watch window.

The whole trick in VBA is in applying these familiar tools to the very specific collections and classes of a particular VBA application like Corel Presentations or Microsoft Word. So, in Microsoft Word, let's create a special VBA dialogue called a UserForm that will insert header and footer text into a document.

Fig. 2 shows the finished UserForm. It allows the user to insert any header text and a copyright symbol (©) at the front of the header text. If the header already contains text, then the text is inserted into the footer. Finally, by checking the right boxes, users can insert any combination of Time, Page Number and Date into the footer as well.

The most important point to note is that all VBA's textboxes, command buttons, and check boxes not only work the same but use nearly the same icons plus drag-and-drop procedures that readers are already familiar with from working with VB.

The following is how we created the UserForm in VBA in Word.

We started with Word (97 or 2000), clicked on TOOLS | MACRO | VISUAL BASIC EDITOR. This starts up VBA as illustrated in Fig. 1.

Second, in VBA select INSERT | USERFORM and, as in VB, a blank form will pop up with the toolbox.

Drag and drop the five checkboxes, change their captions to Copyright, Time, PageNumber, Page No. with Totals and Date.

From here, adding the textbox (and changing its Multiline property to True) and command buttons for OK and Cancel is trivial. The harder part is getting the UserForm to put the text and selected fields into any Word document header and footer. Fortunately VBA provides a nifty shortcut.

All I had to do was record a macro (TOOLS | RECORD A NEW MACRO) by performing the tasks. VBA then records all the steps for, say, inserting the Time and Date fields into a footer. Then, after stopping recording the macro, you immediately edit it (TOOLS | MACRO | MACROS | EDIT). Voilà, VBA shows you the precise code to use and all you have to do is copy the VBA code into the right spots in your UserForm's source code. Better still, you can export your UserForm and re-use it in other VBA or VB programs (FILE | EXPORT).

However, there are still two tricks to getting your UserForm to work from Word's menus and toolbars. First, create a new, empty macro named HdrFooter (TOOLS | RECORD A NEW MACRO), then stop the macro immediately without recording any keystrokes or mouse selections. Then immediately edit HdrFooter (TOOLS | MACRO | MACROS | EDIT) and add one line:

```
UserForm1 Show
```

Save the changes to create your own Word

Continued on page 112

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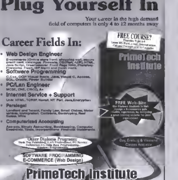

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All you ever wanted to know about XML

By David Tanaka

For anyone who believes extensible markup language (XML) is going to be a key e-business technology and wants to know more about it *The XML Handbook, Second Edition* is recommended reading It is an approachable book on a complex topic, suitable for business managers, Web developers, or anyone who wants a good thorough introduction to XML.

The XML Handbook, Second Edition
Authors Charles F Goldfarb and Paul Prescod
Publisher Prentice Hall
Softcover 1 013 pages 2000
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ISBN 0 13-104714 1
Price: $68

The book's 66 chapters—organized into 13 sections—offer comprehensive coverage of XML basics case studies of XML implementation in companies overviews of the latest XML tools issues related to Web site architecture and even basic tutorials on working with XML. Some sections require more technical understanding—of programming for example—than others but anyone with a grasp of information management principles in business will find something useful and interesting in this handbook Our Webmaster liked the technical parts, whereas I went for the case studies We agreed that the book was pretty good reading, but for different reasons

Part I comprises five chapters, and the authors recommend that everyone read it first, then go to the other sections that hold particular interest This is good advice as the first 75 pages of this volume offer an excellent orientation to XML its defining characteristics its foundations in standardized general markup language (SGML) and its relationship to hypertext markup language (HTML)

The book includes many case studies of organizations that have implemented XML to address specific business problems The case studies were supplied by the companies whose tools or solutions are being highlighted This approach can often lead to an uneven presentation but the authors have done a good job of rewriting to maintain a consistent style and structure throughout the book These are useful cases giving interesting insights into how different companies or industry sectors approach and solve problems

Lead author Charles Goldfarb has an impressive set of credentials He is credited with coining the term markup language and leading the team that created SGML the foundation for both XML and HTML ❑

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Visual Basic for Applications
Continued from page 110

command In effect, the HdrFooter macro calls my UserForm and makes Word display it on screen as in Fig 2 Now the last task is to make your command readily available in Word This means adding the HDrFooter macro to a toolbar or directly into Word's menus Here is where another trick is used.

There is a detailed description for adding a macro onto your own customized toolbar and into Word's in Word's help system The basics are to create your own custom toolbar (TOOLS | CUSTOMIZE | TOOLBARS | NEW) Add the macro HdrFooter to your toolbar. Then drag and drop the HdrFooter toolbar icon onto the specific menu you want it included in You've now customized Word with your own VBA developed command

This is the power and attraction of VBA. Users can create their own commands and customize programs like Corel WordPerfect, Peachtree Accounting, Visio and any other program that runs VBA If the concepts seem a bit fuzzy, don't worry, we have stepped quickly through an advanced exercise In our next tutorial we will go over some of the steps in more detail In the meantime, a copy of the UserForm is available at my Web site (http://www.inforamp.net/~jsurv) for downloading to check out the working VBA code. In addition, there are a number of books on VBA. *Visual Basic for Applications Fundamentals*, by David Boctor (Microsoft Press, 1999) is a very good starting reference since neither *Beginning VB* or the *VB6 Black Book* (the two references we've used throughout this VB tutorial series) cover VBA at all ❑

Jacques Surveyer is a consultant The tutorials in his Visual Basic series can be downloaded from http://www.inforamp.net/~jsurv

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Job title: game producer

By Ross MacDonald

As millions of gamers wreck their wrists in pursuit of that elusive high score, computer game makers are firmly aware than many of these same consumers smugly believe they could make their own games—and better ones too—if given half a chance. But it may surprise those armchair experts to learn that producing games has little to do with how well you woggle your joystick and a lot to do with the application of management, business and marketing skills.

But if you're convinced your dream career path leads to the world of computer games—and our little warning hasn't put you off—what follows is an indication of the skills you need and steps you'll have to take to land that job of producing your passion.

What the job entails

Game producers are responsible for the broader vision of each game. They put together the team of artists, programmers, product managers, and designers whose combined talents create that final vision.

The game producer ensures that all design and creative decisions made about any aspect of the game fit the overall vision. More specifically the producer helps direct design, ensures quality standards are maintained, studies licensing opportunities, works with marketing staff, negotiates contracts with independent developers, etc. It's a very busy day and joysticks rarely come into it.

The training

"An aptitude for logic and flow in particular, is typically what someone needs to get into programming and the design of multimedia projects," says Lorenzo Santini, vice-president and general manager of the Institute for Computer Studies, which has five campuses across Canada. "People with those attributes have more of a creative approach to application design. When it comes to the technical aspects, there are fundamental skills required, but to produce games it is essential that they have creative abilities too," he says.

In terms of choosing courses, be aware that the producer is never involved in writing code. Programmers would never let a producer near their work so learning programming would not advance your ambitions. On the other hand, the ability to work comfortably with applications such as Adobe Photoshop and Microsoft FrontPage, and to structure intranets are tools for communicating your ideas to the rest of the production team when the time comes.

"The technologies that people want to be learning in order to get into the gaming environment should address multimedia... specific software for GUI [graphic user interface] technology, object oriented programming and Perl technology," adds Santini.

Even more salient, however, is how Santini emphasizes the so-called "soft skills"—the refined ability to present, communicate and manage—which are equally, if not more important than technical ability for success as a game producer, because creating games and supervising their development to a final product is very much a team effort.

Santini suggests that in preparing for a career as a game producer you should ensure that the schools you're considering have programs that include—regardless of the technical calendar—a solid grounding and genuine training in the soft skills.

Definite training musts, above all else, project management with strong communication skills, and the ability to make presentations in a group setting.

On the job

Wil Mozell holds the fortunate position of games producer at Electronic Arts (EA) Canada, publishers of the popular NBA Live, NHL 2000, and Triple Play Baseball games among many others. His description of his job is much more intricate than armchair experts might immediately suspect.

If you think you can simply pitch your brilliant idea for a new game directly to a company, you're wrong, Mozell says.

"Really it's about experience. We hear a lot of great game ideas, but they are very rarely robust enough that we'll say, 'Hey, that's a great idea. We want to acquire that from you. Let's work together to build it,'" he says.

"Instead a lot of the best game ideas that are applicable to our development process come from individuals within the company. So there's definitely an opportunity for somebody who has great game ideas to become a producer, but there's a process within the company that they would have to go through."

Mozell says the generally accepted path toward the position of game producer at EA starts in the quality assurance department. "That's really the foot in the door. You're in a team atmosphere testing product and really understanding the process to getting a product up to EA standards and getting it out the door."

From there you will typically spend a couple of years going up the ladder from tester to lead tester to supervisor of multiple projects. As you follow this path, you will have spent a lot of time working with the development groups—which include software engineers and artists—as well as with the different levels of producers, from assistants and associates to executives.

But Mozell adds that there is no set path toward his job, simply that the above scenario is most likely. "I'm actually a finance graduate from Simon Fraser University who came to Electronic Arts to work in the finance department. But after a year of working in finance, but spending a lot of my own time with the people who make the games, I decided that's where I wanted to be and so I jumped the fence from finance to production and became an assistant producer. Then, over the past five years, I've grown into the producer role."

Despite the varied paths that are possible toward this job, Mozell emphasizes the importance of having a love for games: "Even though I came from finance I always had a passion for product. I really love the software industry and specifically entertainment software. We've spoken to many people in the past who may have had great organizational skills and understanding of IT but if you don't have the desire and passion to want to become part of a product, you'll find it very difficult."

To address this important qualification, one of the key questions Mozell asks during job interviews is whether the applicant has ever created his or her own game—not to the full development stage of course, but at least to the point where the applicant can talk competently about the concept.

Despite the variations in training and paths that can lead to this dream job, Mozell sums up what qualities and skills will get you closer to your goal. "If you took an individual who was a university graduate with a dual major in business and in computer science and had an absolute passion for games, they would be a very attractive candidate. Obviously too, they would have to have amazing communication skills in terms of how to deal with people, because you have to be able to talk with your development team and make better decisions because of that. We're looking for people who fit. You could have the best credentials ever, but finding people who fit well into a team environment is critical." ❑

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Liberating higher learning

While people with disabilities make up 15 percent of Canada's overall population, they represent only about one percent of university students. To improve accessibility, some universities are turning to technology.

By Tom Venetis

Of the nearly 850,000 students enrolled in Canadian universities, only about 10,000 have disabilities. While that is up from the nearly 6,000 students with moderate to severe disabilities who were enrolled in 1995, at roughly 1.2 percent it is still far from reflecting the percentage of disabled people in the Canadian population overall—about 15 percent. In an effort to change that imbalance, some universities are using technologies such as the Internet and voice recognition software to help those with disabilities take part in university life

> The student does not have to come up to the campus except to write an exam. The rest of the time, they are behind their terminals at home.
>
> *—Joseph da Silva, Atkinson College*

For approximately four years Toronto's York University has been experimenting with different kinds of distributed learning methods in an effort to help those with various kinds of physical disabilities take part in lectures and classes. Recently, York has focused some of its efforts on using Lotus's LearningSpace solution to offer classes over the Internet

This summer York plans to offer some 20 courses that will be solely Internet based, says Joseph da Silva, director of computing for Atkinson College, the main York University campus in Toronto. He says the university has been looking at using the Internet to deliver courses to students for some time

"The student does not have to come up to the campus except to write an exam" da Silva adds. "The rest of the time, they are behind their terminals at home"

Courses that will be offered over the Internet include psychology animal behavior, philosophy, sociology and nursing. By the beginning of the new term in September Atkinson College plans to offer nearly 40 courses online.

Da Silva says Atkinson College chose LearningSpace because of the extensive experience the college already had using Lotus Notes and Domino. LearningSpace is an application development platform that runs on top of Domino and can be used across both intranets and the Internet. With LearningSpace running on top of Domino, the university can create programs that can be delivered to students' desktops.

Atkinson College designed a four-part online process for students taking courses over the Internet. A Schedule section informs students about course requirements assignments, and how they will be graded. A Media Centre allows access to the course materials, while a Course Room provides a forum for discussion and comment. A Profiles section will hold background information about the students, their interests and is intended to help students and professors get to know each other

> The speech recognition software converts what the professor is saying into text, and the text is then projected onto a video screen in real time.

"We found that there was a great deal of interest also coming from other professors," da Silva says. "Many are starting to see the program as a way of augmenting and adding value to their existing classes. We have three courses online now that are traditional classes which use the Net to add additional material, and that is going to rise to about nine courses in September"

Susan Vida who is studying for her master's degree in communications at Montreal's Concordia University and who counts herself among Canadas disabled student population, says the work York's Atkinson College is doing is part of a trend at universities to use the Internet as a means of reaching students with disabilities.

"That is something that is useful for students with mobility and motor impairments, or with sensory impairments such as myself," she says

Another university that has been seriously looking at technological solutions as a way of opening its doors more widely to students with disabilities is Saint Mary's University, in Halifax, N.S

For some 20 years, the Saint Mary's Atlantic Centre for Research Access and Support for Students with Disabilities has been exploring various solutions to help people with disabilities become part of the university community Its most recent work is the Liberated Learning Project, which, in partnership with IBM, used ViaVoice speech-recognition software in the classroom. A professor is fitted with a wireless microphone and conducts his or her lecture. The speech recognition software converts what the professor is saying into text and the text is projected onto a video screen in real time This allows students with hearing or learning difficulties to follow the lecture with the rest of the class Afterwards, the lecture can be edited to correct errors or to add additional material, and can be made available to all students.

"We became the first university in the world to put this into three classrooms in the fall of 1998" says Keith Bain, project manager for the Liberated Learning Project. "The software is designed to capture natural spoken language If you were to sit in the classroom and close your eyes, you would not notice anything different. The lecture is delivered as it would be in any other class at any university"

Dr David Leitch, director of the Liberated Learning Project, says this system means students with learning or physical disabilities no longer have to rely on note takers Even the best note takers can't take down everything said during a lecture, which can result in important information being unintentionally lost.

The ViaVoice software has also been modified so unusual words are highlighted and can be queried later by students. It also adds the

Continued on page 115

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Quick Tips

Microsoft Access

By Helen Bradley

Adding your logo to a form

To add your logo to an Access form, click the Forms tab select your form then choose Design Click the image button in the Toolbox (if the toolbox isn't visible choose View, Toolbox to display it) then click on the form in which you want the top left corner of the logo to appear In the Insert Picture dialogue locate the image to use and click OK. If the image is too big click Properties, and from the Format tab set the Size Mode to Zoom and the Picture Alignment to Top Left. Use the sizing handles on the image to adjust its size.

Descriptive field names

If your Access database has field names that don't neatly describe the contents of each field you can use the Caption property to create more descriptive field names To do this open your table in Design view and set each field's Caption property to the word(s) you d prefer to use to describe the field Now when you create a form or report based on the table your captions will appear as the field headings rather than the actual field names.

Documenting your database

Often you'll want to obtain details about the structure of your database rather than its contents You can obtain this by choosing Tools, Analyze, then Documenter From the dialogue, choose the objects you want to obtain information about then select Options to set the preferences for this object type Your report will appear on the screen and, if you like, you can print a copy by clicking the Print button Alternately choose Tools OfficeLinks then Analyze It With MS Excel to export the data to Excel

Preventing changes to data

Access forms are useful for entering and displaying data from your database But when you re displaying data you ll generally want to prevent the viewer from making changes to a field's contents Do this by locking the field in Design mode. Select each Control used to display the data that you want to protect then from the Properties list set the Locked property to Yes

Phone numbers in Access

When you re entering data such as phone numbers into an Access table it can help to create an input mask so they'll be entered in the correct format To do this open your table in design view and select your phone number field From General tab choose Input Mask and click the ellipsis at the far right to start the Input Mask Wizard From the options select Phone Number then Finish and save your changes.

Finding duplicates

Purging duplicate data from your database is easier when you use a Find Duplicates Query to locate it To create this query choose Queries New, Find Duplicates Query Wizard then click OK. Choose the Table to check for duplicates then the fields in which you want to search for duplicate data. You'll need to experiment a bit to find the fields in your table that are most likely to contain the duplicate data

Force fields

When a field in a table contains data that must be entered for every record you can force a user to complete the field by preventing the record from being entered until the field is complete. To do this open your table in Design view select the Field you require to be completed, then from its Field Properties set Required to Yes.

Calculating queries

Use a query to return information calculated by using data in an Access table For example if your table has a field containing Cost Price create a column in the query results to contain the sale price of every item based on a markup of say 30 percent To do this open your query in Design View and in a new column's Field area type your formula in this format

```
CostPrice*(1 + 0 30)
```

When you run the query each item will include the calculated selling price.

Default values

When most of the data in a field in your table contains a specific entry you can set a default value for the field and save data entry time For example you can use this to add Canada as the default country entry in a table of customer data. To do this open the table in Design view select the field from Field Properties choose the General tab and in the Default Value area, type the default entry for the field ❑

Helen Bradley specializes in writing hands-on tutorials. Her columns appear regularly in a number of publications in Australia the U.K. U.S and Canada She also reports on the computer industry for Australian Radio Contact Helen at helen@helenbradley.com

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Liberating higher learning

Continued from page 114

necessary punctuation, so students are not left looking at a wall of text.

"This is useful for students who are deaf and may find that a misunderstood word from the machine throws the lecture off," adds Bain

Now moving into a second phase of testing, the Liberated Learning Project will be put into more classrooms It will also have the cooperation of such institutions as University of Texas in Austin and the University of South Hampton Toronto Ryerson University is being considered as a partner as well.

The project developers would also like to make the lectures available online similar to what York University's Atkinson College is doing with LearningSpace.

"Our plan is to build a repository for the place where students who are registered in those classes where the Liberated Learning Project is happening will be able to access the entire lecture course online and in a variety of formats," adds Leitch. ❑

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Wireless industry ramps up research through partnerships

By Stefan Dubowski

Canada's wireless industry got a double shot in the arm in early May as mobile network builders, device manufacturers and service providers made major announcements.

At the top of the list, chronologically, Montreal-based wireless access provider Microcell Connexions Inc. announced it is teaming up with Waterloo, Ont.-based Research In Motion Ltd. to test a super-fast version of RIM's mobile email messenger, the BlackBerry.

"Think about all of the information available on the Internet and you're starting to see it being brought down to the power of the user," said Claude Brisson, Microcell's vice president of business development.

The standard BlackBerry is slightly larger than a pager. Despite its small size, the device is sported by many tech industry executives.

RIM has plans for BlackBerry—namely, high speed connection via Microcell's cross-Canada global system for mobility (GSM) network.

> Think about all of the information available on the Internet and you're starting to see it being brought down to the power of the user.
>
> —*Claude Brisson, Microcell*

GSM is almost a global standard for networks. It's used in North America, Europe and in some parts of Asia. By comparison, code division multiple access (CDMA) networks are used in North America alone.

RIM's pocket-sized device will get a boost from Microcell's General Packet Radio Services (GPRS) technology. This could mean connection speeds of up to 115Kbps, compared to dialup modems running at 50Kbps.

Both companies are banking on the BlackBerry's future as an "always on, always connected" device.

"You can answer emails on the move," Brisson said, describing BlackBerry's current function. In time, however, "you can think about synchronizing your schedules instantly."

The GPRS-enabled BlackBerry starts its trial phase soon in Waterloo, with participation by RIM employees.

When should we expect to see this device on store shelves? Brisson said, "We're not going to be specific about that. We'd like to keep that information to ourselves at this point."

Time for wireless

According to Peter Barnes, it's a good time for the wireless community in Canada. Barnes is the president and chief executive officer of the Canadian Wireless Technologies Association.

"I think it's because you and I don't come with wires," he said. "We like to move around ... We're not meant to be tethered."

Barnes sees an industry where prices for consumers are dropping. Canada already has the second-lowest cost for wireless service in the world, he said. Plus, one in four Canadians has a mobile phone.

"The challenge for manufacturers is to make phones smaller and lighter, and to build more services into them," he said.

To that end, Aliant Inc., the alliance of four previously separate East Coast telcos, plans to drop $1 million on a wireless industry research and development initiative. On May 4 the company announced that it would work with the Canadian Centre for Marine Communications (CCMC) to pass the bucks along to promising wireless projects.

The CCMC is an 11-year-old organization dedicated "to the technical and commercial development of marine products and services ... in co-operation with industry and government," according to Neil Cater, the centre's manager for wireless research and development.

In this case, however, the organization isn't binding itself to marine products and services. Aliant's money could go anywhere, so long as it promotes Eastern Canada's wireless future.

"Primarily anything that stimulates the usage of the mobile carriers' infrastructure," Cater said from his St. John's, Nfld. office. "These days that almost immediately means cellular... but it's not limited to that."

Only a few days after the CCMC and Aliant put out its request for proposals, Cater said he has already received a few. But he wouldn't say who was chasing the research and development money.

"It's aimed at small and medium enterprises," Cater said. "I think definitely 500 or less [employees] but we're probably looking at 50 or less. They tend to be startups with an entrepreneurial bent. Many of them start with a project rather than a company."

Although Cater said this money could help foster a growing industry in Eastern Canada, its purpose isn't purely altruistic. According to Industry Canada guidelines, large wireless companies must offer a portion of their revenues for research and development.

In other words, Aliant had no choice but to put its $1 million to work.

"They can do it themselves, they can do it through academia or they can do it through a certified research and development centre," Cater said. "The CCMC falls into that third category."

In the end, the CCMC and Aliant hope to stem the tide of university graduates who head west to find their fortunes in Canada's electronics industry.

"If we can come up with the next Research In Motion, my job will be done," Cater said. ❑

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Continued from page 14

Corel acquires MetaCreations pro tools

Ottawa based Corel Corp (http://www.corel.com) has announced its has acquired a trio of professional graphics products from Carpinteria, Calif based MetaCreations (http://www.metacreations.com).

The software tools include Painter a natural-media painting program; Kai's Power Tools (KPT) and KPT Vector Effects plug-in applications for Photoshop and Adobe Illustrator; and Bryce a 3D landscape creation and animation program As all three are Mac and Windows compatible Corel says it expects they will strengthen its presence in the Macintosh graphics market.

In an effort to keep the products consistent during the transition to Corel and after, the company says it has contracted the creators of Painter and additional MetaCreations software engineers to assist in development of the product lines.

—*TCP Staff*

IBM rolls out 'monitors for the masses'

IBM Corp has unveiled its spring lineup of flat-panel monitors, tripling the number of of thin-film transistor (TFT) options from two to six

Calling them "monitors for the masses" IBM is banking on the business world's need for space-saving devices to propel sales of flat-panel monitors which take up far less desktop space than the standard cathode-ray tube (CRT) monitors

The new models include the T54A, a 15-inch monitor with a maximum resolution of 1,024x768 pixels; the T56A, a 15-inch monitor that allows the user to rotate the screen into either a portrait (tall) or a landscape (wide) mode the T74A, a 17 inch model available in both black and white; and the T86A, an 18-inch flat-panel monitor that offers flicker free display with a maximum resolution of 1,280x1 024 pixels IBM has also announced two CRT monitors that incorporate flat panel technology the E74 and the E74M which respectively offer 15-inch and 17 inch viewing areas

While the business world may find the flat panel monitors particularly useful for tackling workspace problems the small-business and home users may want to wait until prices go down The basic flat-panel monitor the T51, retails for about $1 499 while the top-of the-line goes for more than $5,800—a hefty price to pay for a few more inches of desk space.

Still analysts predict the need to maximize office space—especially in places like call centres and trading floors, where space is at a premium—will propel sales of flat-panel monitors. They expect prices will eventually drop far enough to attract home users.

—*canadacomputes.com*

New phones offer music, radio, keyboard

LOS ANGELES—Ericsson unveiled a series of Web-enabled wireless devices and accessories at Spring Internet World 2000 in Los Angeles recently New offerings included Web-enabled handsets including WAP (wireless application protocol) and Bluetooth-enabled phones and a variety of add-on devices.

The new phones feature voice-activated dialing and several PDA-like apps including a calendar reminder and to-do lists However, it was

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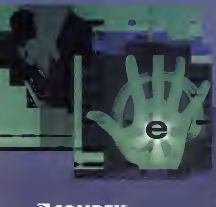

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Continued from page 117

a trio of phone accessories, not the phones, that really turned heads at the Internet show.

One of the accessories was the Chatboard, a 49-key miniature keyboard that snaps onto several Ericsson phones. It was designed to eliminate the cumbersome hunt-and-peck typing that is currently required to create a text message using a phone keypad. The Chatboard is about the width and height of a business card and weighs less than 57 g (2 oz.). It also has special keys for launching SMS (short messaging system), email, contact list, a Web browser and for attaching files to messages. It is expected to retail for about US$49.

Ericsson has also created an MP3 player accessory for its phones. Incoming telephone calls and music are channeled through the same cord, which has two earplugs, a microphone

and an "answer call" button. The music automatically mutes for incoming calls, and the player runs on the mobile phone's battery. MP3 files are stored on a small memory card.

Also available for Ericsson's GSM phones is an FM radio attachment. The snap-on receiver scans for available stations with the push of a search button. Radio feed is channeled through a cord that has similar functionality to that of the

MP3 player. Presently, the sound is monaural, but Ericsson says that future versions will have stereo sound.

—*Newsbytes*

Free ISP takes service to Latin America
TORONTO—A Calgary-based Internet service provider (ISP), which currently offers advertising-supported Net access in urban Canada, has announced plans to take its free service to as many as 21 Latin American countries.

Cybersurf Corp., which launched as a local ISP in Calgary in the mid-1990s, has more recently launched the free Internet access service it calls the 3web Network in a handful of Canadian cities, including Vancouver and Toronto, and claims more than 300,000 subscribers.

Cybersurf is notable for distributing its 3web start-up CDs at gas stations in cities in which it offers its free dial-up service.

—*Newsbytes*

Home powerline Net standards sought
SAN RAMON, Calif.—More than a dozen communications hardware vendors have formed an organization dedicated to standardizing protocols for building computer networks in homes using ordinary electric wiring.

The HomePlug Powerline Alliance (http://www.homeplug.org/), which announced its formation in April, is similar to the two-year-old Home Phoneline Networking Alliance (HomePNA) that was formed to standardize the

Continued on page 126

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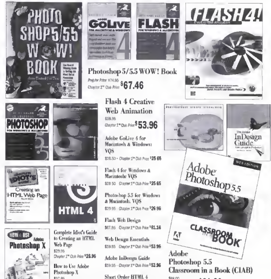

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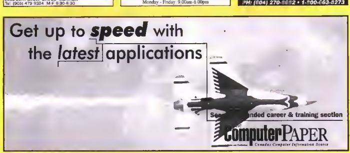
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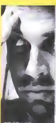

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ATTENTION USER GROUPS: Send in your listing (maximum 100 characters) for the July issue by Monday, May 29, 2000. Submissions run for one month only in the local edition. The Computer Paper reserves the right not to print submissions which are deemed unsuitable.

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May 30 - June 1 [illegible] 2000 CIPS [illegible]

Continued from page 120

use of household telephone wiring for computer networks. Many top technology companies are members of both organizations.

Home networking via powerline carrier (PLC) uses existing electrical wiring outlets in homes as networking links for personal computers and other devices. One of the attractions of PLC is the availability of the humble household electrical outlet compared to the relative scarcity of telephone jacks.

"Powerline is the most ubiquitous medium for networking in the home around the world," said Mike Wolf, manager of residential and enterprise communications at research company Cahners In-Stat Group. "HomePlug is taking the necessary step of combining broad industry support with a unified specification for powerline networking. This combination will allow for the development of interoperable, lower cost products that will ultimately benefit the consumer."

The HomePlug alliance said it is aiming to develop a specification in time for manufacturers to create HomePlug-compliant products by the end of 2000.

—Newsbytes

Jasc unveils Trajectory Pro 0.2

The company that created high-end graphics tools like Paint Shop Pro, Animation Shop and Image Robot is chasing the mutable standards of vector graphics with its latest product for Web designers.

On April 17, Jasc Software unveiled its latest pre-production version (0.2) of Trajectory Pro, the first vector graphics and animation program designed to follow a worldwide standard—before the standard has been set.

"It's like shooting at a moving target," says Elshaddai Edwards, the company's product manager. "We're somewhat depending on them to come up with the standard."

"They" are the members of the World Wide Web Consortium (W3C)—the private-sector group that set hypertext markup language (HTML) as the standard for Web page programming. Now the W3C is trying to pin down scalable vector graphics (SVG) specifications.

Edwards says Jasc has a habit of letting programs loose on the Internet before they're ready for production.

"It gives (people) a chance to play with it," he says. It also gives the company a chance to see what people think of new programs. Jasc is drawing on its shareware roots to create an unofficial team of beta testers.

These people include "our own users on Paint Shop Pro," Edwards said. "We have a lot of Web designers interested in SVG. We're just trying to get a feel for what they need to be effective."

Trajectory Pro uses vector graphics technology. Unlike bitmap technology (which is used to create a GIF file, for example), this soon-to-be standard is easily manipulated.

"If you try to resize a bitmap image you'll lose some of the quality," Edwards explained. "With vector graphics you can resize the image and maintain quality."

Trajectory Pro 0.2 is available for free from Jasc's Web site. According to an April 17 press release, 10,000 people downloaded version 0.1 in its first month.

Take note: this is a pre-production version, which, in the shareware tradition, will self-destruct after a few months.

When the tests are over Jasc plans to put Trajectory Pro on the market. It won't be free but it also won't implode.

—canadacomputes.com

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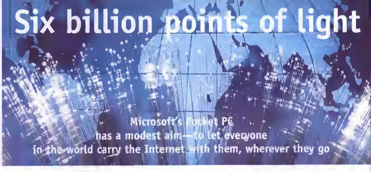


Six billion points of light

Microsoft's Pocket PC has a modest aim—to let everyone in the world carry the Internet with them, wherever they go

I remember going to the launch of Apple's Newton MessagePad handheld "personal digital assistant" back in 1994, and coming away shaking my head. It was a nice technology exercise, I thought, but what could it do for me that really needed doing? The answer was nothing. No keyboard, no colour, no music, no modem. Plus the user interface was remarkably mysterious for an Apple product, and the handwriting recognition didn't work. Next!

Six years later, in April 2000, I went to the Canadian launch of Microsoft's Pocket PC and came away with a very different opinion of the gadget du jour. As I watched Pocket PCs from HP, Compaq and Casio being put through their paces, I kept thinking, "what a difference. They've actually got it right. I can use this."

The main Pocket PC features I liked were the built-in Web browser and email client, high resolution, 16-bit (65,000+ colours) TFT screen, two varieties of good pen input for entering text, excellent audio output, easy expandability and networking options, and the very simple user interface for accessing a full suite of application software. The clincher for me was that with an optional modem or LAN card, the Pocket PC appeared to effortlessly handle connection to the Internet, including Web browsing and email. Finally a handheld device that offers a compact but satisfying version of a desktop PC's feature set.

It sounds too good to be true, I thought, especially coming from the company that released the underwhelming Windows CE 1.0 operating system in 1996.

No more WinCEing

With Microsoft, the harsh saying goes, the first version of anything is crap, the second is mediocre, and by the third or fourth version it no longer sucks. The Pocket PC, though it bills itself as being "Windows Powered" rather than a Windows CE device, is in fact Microsoft's fourth kick at the CE can, and it's a huge improvement. More than that, I'd say it's the best handheld operating system I've ever seen.

The first generation of Windows CE was not very usable. The software was only occasionally compatible with its full-sized PC equivalents, and the CE hardware form factor—tiny keyboard, faint grey screen, crowded onscreen user interface—didn't win many converts. In particular, when stacked up against 3Com's elegantly simple Palm line of handheld personal organizers, or the friendly and efficient Psion, the first generation of Windows CE devices came off a poor third.

With the Pocket PC, Microsoft has, as is its way, carefully studied the competition, listened to its own customers, and combined some original thinking with a lot of smart copying while improving to come up with a potential world beater.

The influence of the Palm line is obvious in the shape of the Pocket PCs: comfortable in the hand, small and light enough to fit in a pocket or purse, with a big screen, PC Card slot, infrared "beamer," simple control buttons, and a cradle to synchronize data between a Pocket PC device and a full-size PC. However, the Pocket PC trumps the Palm, even the new colour Palm IIIc, at every opportunity.

The screen is great, a brilliant and crisp active matrix display, with electronic book display enhanced by Microsoft's ClearType technology. The basic Pocket PC systems have either 16 or 32 MB of memory (in most cases, it can be expanded further if necessary), enough to manage major graphics, sound and Microsoft Office files, and the OS delivers a strong slice of a real PC's useful features.

All I can say is that 3Com was smart to launch the initial public offering (IPO) of shares in Palm before the release of the Pocket PC. If they had waited, the competition posed by Pocket PC might have had a dampening effect on investor excitement in Palm.

The Big Three of pocket-sized computing

Microsoft has partnered with some heavy hitters to deliver the first generation of Pocket PC devices. At the April 19 launch, Compaq, Casio and Hewlett Packard all showed new handheld computers, which should be shipping by the time this *Last Byte* sees print.

HP, historically the most successful of the Windows CE device makers, is offering the Jornada 540 series, with software such as Yahoo! Messenger and PeaceMaker, a utility that allows data to be exchanged with Palm handhelds via infrared beaming.

Compaq's iPaq Pocket PC offers an almost unlimited ability to morph into different configurations (for networking or MP3 music playback, for example) by adding Expansion Pack modules that slide onto the basic handheld unit. Casio's Cassiopeia Pocket PC features extra-long battery life with Lithium Polymer batteries, and a video capture and conferencing capability via a clip-on digital video camera. The new devices have list prices ranging from $729 to $899 (modems, expansion packs and added memory modules are all extras).

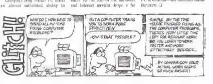
It's rare in the computer industry these days to experience any single event that seems to mark a real inflection point, or significant change in direction of the computer industry. However, I believe the release of the Pocket PC is just such a catalytic event in computing. The appearance of the Pocket PC will mark the point where the vision for the next generation of computing finally became clear from an end-user perspective.

I predict that the most important trend in computing for the rest of the decade will be pervasive connection to the Internet via non-traditional computers. There will be a rapid proliferation of hundreds of millions of multimedia Internet devices of all shapes and sizes, many of them wireless and pocketable or embedded in vehicles or other appliances. As the cost of the hardware and Internet services drops, a far greater proportion of humanity will have access to the Internet. By the end of the decade, the number of personal Internet devices may number in the billions. The traditional desktop PC will still be around, but it won't be where the action is.

I don't think Microsoft has won the race to the future with the Pocket PC, by any means. Innovative competing technologies such as Palm and Transmeta's Crusoe processors, Linux and Java are all likely to take a piece of the pervasive Internet pie. What Microsoft has done with the Pocket PC, however, is to raise the bar very high on what handheld computers are capable of doing. The Pocket PC will force rapid improvement in all competing mobile computer makers.

Ironically, the new price/performance race the Pocket PC will spark may mean skimpy profits from making the actual handheld computer hardware. If I were a betting man, I'd lay my money on the handheld software makers (Microsoft, Oracle), and the companies providing the infrastructure and Internet services for the multi-billions of mobile Web surfers (IBM, Cisco, Lucent, Intel, 3Com) as being the main beneficiaries of the coming mobile Internet boom.

Oh, and one other category of company will get rich off the Pocket PC revolution—the batteries manufacturers. ❑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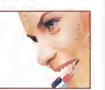

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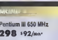

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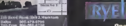

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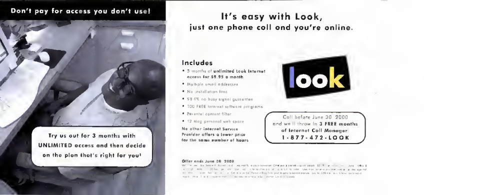

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